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HAVE GREAT AMBITIONS.

In the long run men hit only what they aim at. Therefore, though they should fail immediately, they had better aim at something high.—Henry David Thoreau.

Limiting Party Line Conversations.

It is very rare that a concern dealing with the public finds it necessary to appeal to the legal authorities to induce people to patronize that concern less, yet that is what has happened in Massachusetts. The New England Telephone & Telegraph Co. has urged the Public Service Commission of that state to take some action to limit the length of telephone conversations over party lines, because of the tendency of many subscribers to monopolize a line while others fume with rage because they are unable to get the wire. This much-vexed question involves the principle of "telephone courtesy," which has been so frequently discussed in TELEPHONY'S columns.

Every telephone manager knows too well the difficulty of solving this delicate problem, and the result of the New England negotiations will be awaited with much interest. Time was when telephone companies found it necessary to urge people to use the telephone, and point out how convenient it was to be able to chat with the neighbors. That day has gone by in most localities and, as in Massachusetts, the problem is now to distribute telephone service so there will be enough to go around and satisfy the real demand.

In many places, party line subscribers are demanding that the company do something to cut off those who are merely "visiting" over the line so that those with real business to transact can have a chance to talk. The proposition to limit conversations to three or five minutes has been considered, but the difficulties of enforcing such a rule are easily recognized. The New England company also intends to put the question up to the subscribers themselves. In the next directory issued the following notice will be printed in big type: "The company respectfully requests party line subscribers to limit their conversations to five minutes when others wish to use the line, and to give immediate right of way in case of emergencies.

Such an appeal is reasonable, but the chances are that it will not do much to improve conditions. Human nature is so constituted that many persons think their own requirements or wishes are more important than even the "emergencies" of others—especially those who have clashed with them about the use of the wire. In case of fire, or sickness, or disaster, an "emergency call" would claim and secure the line, but would the man with—to him —a very important business matter to transact, be able to get the wire from a couple of gossips on the simple statement of his needs? We think not.

The Massachusetts commission has also received many complaints from individual subscribers, who could not obtain connections with subscribers or party lines. Various types of meters have been invented with the idea of charging for telephone service on a time unit basis, similar to the metering of electricity, gas and water. Meters of this type have not as yet been adopted to any extent by telephone companies. The argument advanced in favor of these meters which applies to the Massachusetts case is that their use tends to eliminate the unnecessary prolonging of conversations. The theory is that parties, knowing that the length of time the instrument is in use is being recorded, will hang up when the actual purpose of the call is completed, just as they will turn off electric lights when they are not needed.

It is hoped that some means will be recommended by the Massachusetts commission which will relieve the situation in that state, and possibly point a way out for companies in other parts of the country. It certainly is a vexatious problem to many managers. As one observer says: "In face to face conversation, two people who can't stop talking when they have finished, waste only their own time. Over the telephone they may delay a dozen of others."

"If You Want to Win, You Will"

By HERBERT KAUFMAN

Your grandfathers learned the use of fire, developed agriculture, invented the forge and the boat, conceived alphabets and numerical systems, evolved the rudimentary sciences, enslaved water-fall and steam and lightning. Your agile minded contemporaries have invested the information of the past in a thousand simplifications of existence, have multiplied your chances for success by the introduction of inventions and preventions, which safeguard your welfare and challenge your ability and ambitions every hour of every day.

Not to succeed in the twentieth century is an earnest of greater incompetence than in any period of history. Compared with the handicaps of the past, the obstacles that oppose the average individual now are insignificant and paltry.

What's the matter with you? Why are you a failure? To what cause can you ascribe your unfortunate condition? Who's responsible for your plight? What circumstance has held you back and kept you down?

Don't snivel and whine against your lot. Don't pity yourself. Don't hunt excuses for your incompetence, but acknowledge that you alone are responsible for your predicament. You did it! You didn't fight hard enough. You gave 'way to your weaknesses.

You neglected your opportunities. You surrendered to a few initial difficulties. You underestimated your early chances. You didn't strive to thrive.

You found existence too easy at the outset. If the world had been twice as cruel; if profitable occupations had been one-half as available; if you had been challenged sternly by fate—you would have sought and fought with double the faith and fervor that you've displayed.

There's nothing wrong with you! You are still equipped to struggle, but you don't exercise your faculties. You surrender too promptly.

Be a man and go back to the contest. Send your imagination roving into the dim ages, when troglodytes contrived to maintain their broods without even the knowledge of bow and arrow.

Review the plague and war-swept centuries, when bigot and tyrant slew and robbed as fancy dictated. Remember the black epoch during which your progenitors scraped and sweated from daybreak to dark without privilege or protection, and contrast your time with theirs.

If men could survive such travails and surmount such cruelties and inequalities, how dare you complain of today?

You're a quitter—a weakling. You lack red blood. You're hazy and lazy. You've been spoilt and overpampered; so much has been done for you, that you've lost the habit of initiative and effort. If you want to win, you'll find a way.

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Tests of Rocky Mountain Woods for Telephone Poles

Western Red Cedar, Lodgepole Pine and Engelmann Spruce Poles Tested to Determine Their Suitability for Telephone Lines—Pole Supply in the Rocky Mountain Region—Bulletin No. 67 of the U. S. Department of Agriculture, Forest Service

By Norman deW. Betts and H. L. Heim

The rapid extension of telephone and power lines in the West makes the question of pole supply one of increasing importance. Tests described in this bulletin show that both green and fire-killed lodgepole pine and fire-killed Engelmann spruce will, under certain conditions, make suitable pole timbers. Western red cedar has long been the standard pole timber in the Western States. It has held its place mainly on account of its durability in contact with the soil, though its light weight has also been a very desirable feature. The tree (*Thuja plicata*) grows principally in Washington, Oregon and northern Idaho. In addition to its wide use for poles, it is extensively cut for lumber, and especially for shingles. In the states south of its region of growth the cost of cedar is high, owning to the great distances over which it must be transported. Moreover, the heavy drain on the available supply must soon result in higher stumpage prices.

There are at present in both the Rocky Mountain and Coast Ranges abundant stands of lodgepole pine (*Pinus contorta*), often called by local lumbermen "white pine," of little value for lumber, but well adapted for poles. Lodgepole pine is not naturally durable in contact with the ground, and for that reason has not been able to enter the field as a competitor of western red cedar. The general adoption of preservative treatment by railroad and telephone companies, however, has changed the situation. At an additional cost for treatment that still leaves the pine pole the cheaper of the two in most of the markets outside the region where cedar grows, the pine may be made to last longer than untreated cedar. Lodgepole pine takes treatment readily. Cedar, on the other hand, allows but a very shallow penetration.

Another tree, Engelmann spruce (*Picea engelmanni*) also has a wide distribution throughout the Rocky Mountains, although it grows commercially only at the higher altitudes. It is thus not as available as the lodgepole pine, nor in shape or in its ability to take preservative treatment is it so well adapted for poles. It grows farther south, however, and in many districts is the only native timber available for pole use. Fig. 1 shows the botanical range of growth of the three species. The relatively restricted range of western red cedar indicates the importance to the more southern mountain states of determining the value of local timbers for telephone and power line poles.

Forest fires in the Rocky Mountains have killed many stands of spruce and pine, and the disposal of this material, which, through checking, is rendered practically useless for saw timber, has always been a troublesome problem. On many areas such material remains entirely sound for a number of years after the fire, and, besides, is thoroughly seasoned and thus ready for treatment as soon as cut. In some regions the mines use all the available dead timber, though elsewhere there is a great deal of prejudice against the use of "fire-killed" material, under the mistaken assumption that there is some inherent difference in wood that has been seasoned on the stump and wood that has been cut when green.

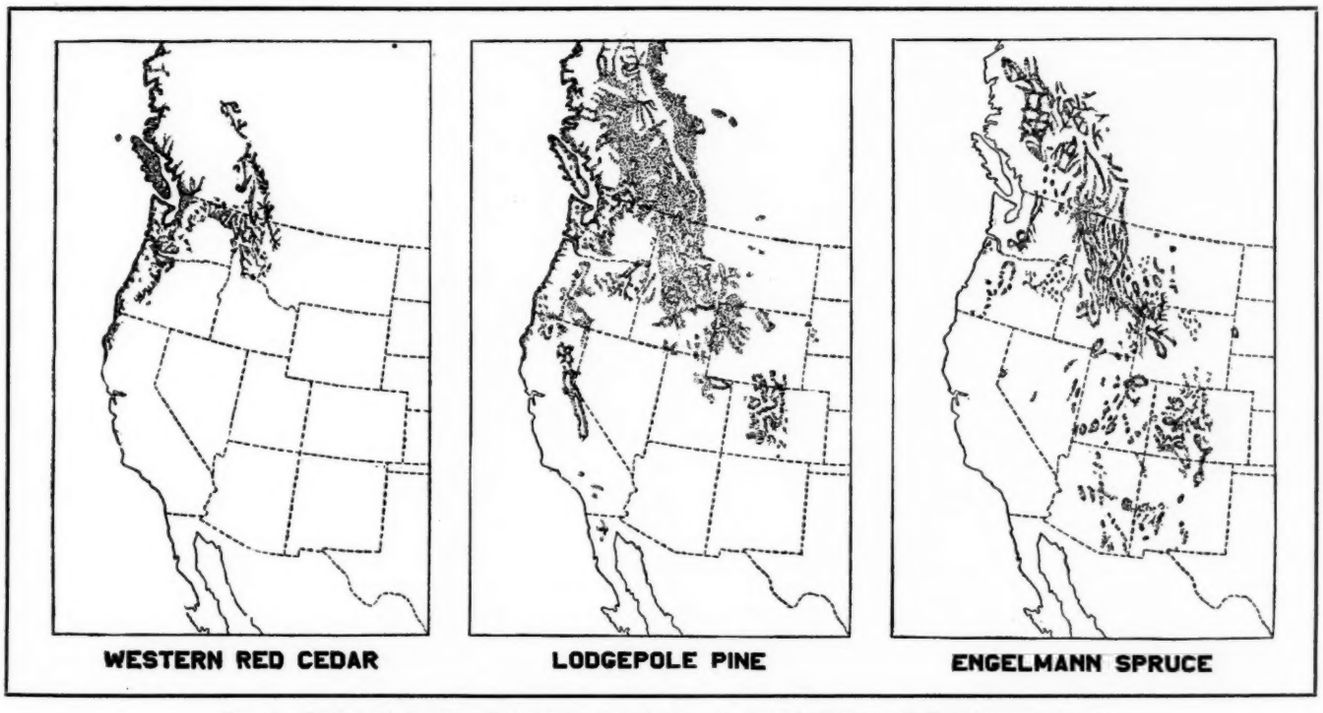


Fig. 1. Botanical Range of Western Red Cedar, Lodgepole Pine and Engelmann Spruce.

The purposes of the tests described in this bulletin were: (1) To compare the strength of poles of western red cedar, the present standard, and of lodgepole pine and Engelmann spruce, and (2) to determine the value for pole timber of fire-killed pine and spruce in the central Rocky Mountain region.

The fire-killed material was donated by the Colorado Telephone Co. and the Central Colorado Power Co. The remainder of the material tested was secured by the Forest Service, either

by purchase or from the National Forests. The tests were made at the Forest Service timber-testing laboratory conducted in co-operation with the University of Colorado, Boulder, Colo.

The material for the tests consisted of poles nominally 25 feet long and of 7 inches top diameter. Average material was specified in each case.

Twenty cedar poles were purchased on the Denver market

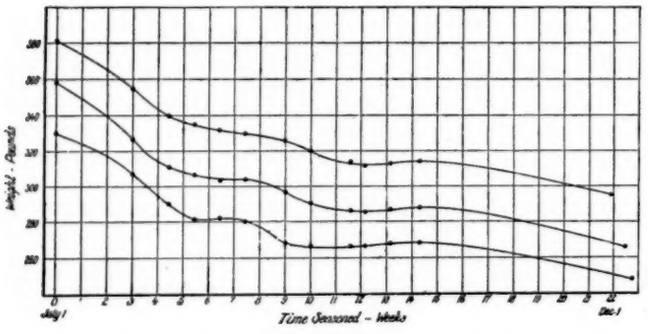


Fig. 2. Rate of Seasoning for Three Lodgepole Pine Poles.

at a cost of $4 per pole. Information furnished by the seller showed the poles to have been cut during the winter of 1908-9, near Edgemere, Idaho. When received at the laboratory they appeared to be thoroughly seasoned, the bark probably having been removed at the time of cutting. All were nearly straight, and checked to the extent usual for seasoned material. A majority had straight grain.

In July, 1911, 22 lodgepole pine poles were cut near Anaconda, Mont., on the Deerlodge National Forest, in a dense stand on a gentle west slope at an elevation of about 6,500 feet. Upon arrival at the testing laboratory, the poles were open-piled in two layers for seasoning. Three poles were weighed at approximately weekly intervals to determine the rate of drying. Fig. 2 shows graphically the rate based on these weights. Based on their shipping weight, the poles had an average moisture content of 60 per cent. when shipped. Assuming that the

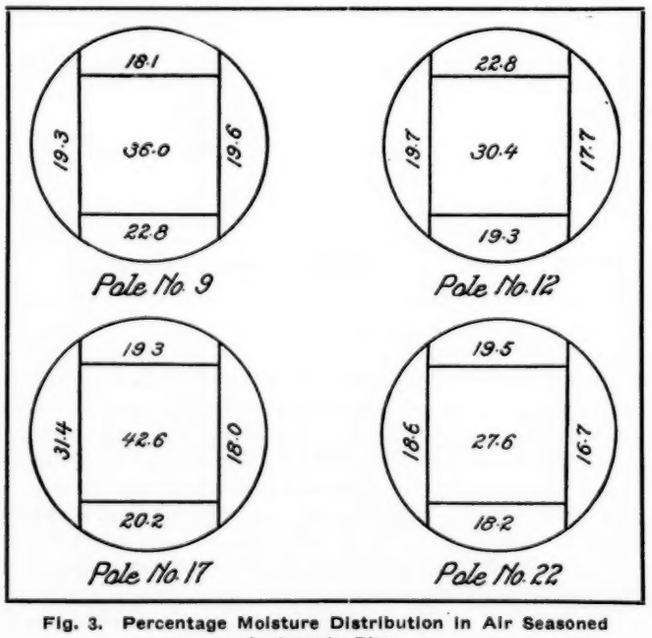


Fig. 3. Percentage Moisture Distribution in Air Seasoned Lodgepole Pine.

three poles represent the average of the shipment, the poles had dropped to 48 per cent. moisture by the time they reached the laboratory. After 12 weeks' seasoning, they had reached 30 per cent., and for three weeks thereafter their moisture content remained practically stationary, due probably to a period of damp weather. The weights taken at the time of test show that after seasoning for 22 weeks, practically from July 1 to December 1, the poles contained about 22 per cent. moisture. Fig. 3 shows the moisture distribution in four of the poles at the time of test. It indicates that the center of the poles was still at or above the fibre saturation point when tested. The poles checked considerably during the seasoning, but not to an unusual extent.

Twenty poles each of fire-killed lodgepole pine and Engelmann spruce were cut near Norrie, Colo., on a north slope at an elevation of about 10,000 feet. The area had been burned over by a light fire about 10 years previously. The poles were largely free of bark, though a majority had patches here and there, showing that no serious weathering of the surface had taken place.

Fig. 4 shows the method employed in testing. The poles were supported about one foot from each end in bearing blocks (*e, e*) resting on rocker supports (*f, d*) 23 feet apart. The load was applied by a universal testing machine through a bearing block (*t*) 5 feet from the butt end of the pole, or four feet from the center line of the butt support. The rocker support (*d*) rested on a pier (*c*) built on the floor. The rocker support (*f*) rested at the center of the auxiliary beam (*g*), one end of which was supported by a rail (*b*) and two piers (*a, a*). The other end of the auxiliary beam (*g*) rested on a roller (*k*) in the center of the weighing platform (*h*) of the ma-

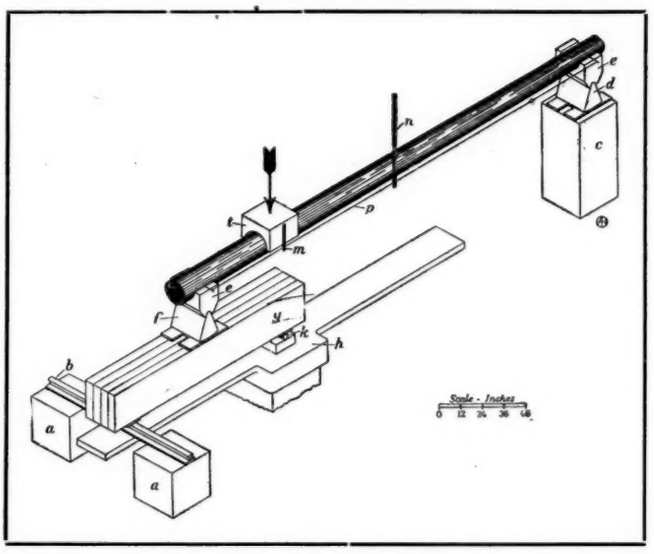


Fig. 4. Method of Testing Poles.

chine. As the load was gradually applied at *t* the pole deflected, and the scale at *n*, at the center of the span, moved down with respect to a taut spring (*p*) stretched between pins driven into the pole on the neutral axis directly over the supports. The deflection of the pole at the load point was read on a scale (*m*), which gave the movement of the machine head (*t*) with reference to the platform (*h*).

Corresponding readings of the applied load, the deflection at the load point, and the deflection at the middle of the span were taken at convenient intervals, and plotted as shown in Fig. 5, until the pole was broken. The settling of the pole in the bearing blocks and deflection of the auxiliary beam (*g*) introduced slight errors in the determination of the deflection. The total error was estimated as less than 3 per cent. within the elastic limit, and the only calculated results affected by this (which was practically constant for all the poles) are the stiffness factor and elastic resilience, both of which are comparable only with results from tests of the same nature.

From each pole after test a 30-inch section of clear wood was taken and cut into 2 by 2-inch sticks. These were tested in bending, in compression parallel to the grain, compression perpendicular to the grain, and shearing. The method em-

ployed in making these minor tests is discussed fully in Forest Service circular 38 (revised). The purpose of these tests was to determine the influence of defects on the strength of the poles.

The poles in each of the four lots were given consecutive numbers starting with 1, in order to distinguish between the individual poles of each lot.

To determine the moisture content, a 1-inch section was cut from each pole as near as possible to the point of failure, immediately weighed, and later dried to constant weight at the temperature of boiling water. The loss in weight divided by the dry weight is expressed in per cent. of moisture.

The length, weight and diameters of the poles were obtained just before testing. The age, rings per inch, per cent. sap, and per cent. summerwood were obtained after test from a section cut near the point of failure. The values for the amount of summerwood were obtained on a 2-inch length taken from an average portion of the section. Sketches were made of the manner of failure, principal defects, and any characteristics to the poles tested.

The deflections and loads at elastic limit were taken from the load-formation curves, a sample of which is shown in Fig. 5. To reduce the load recorded on the scale beam to the true load on the pole, all recorded values were multiplied by $\frac{23}{19} \times 2$, and appear in the tables in the corrected form. Stresses at elastic limit and maximum load were calculated for the outer fiber under the load point. The moment of three-fourths

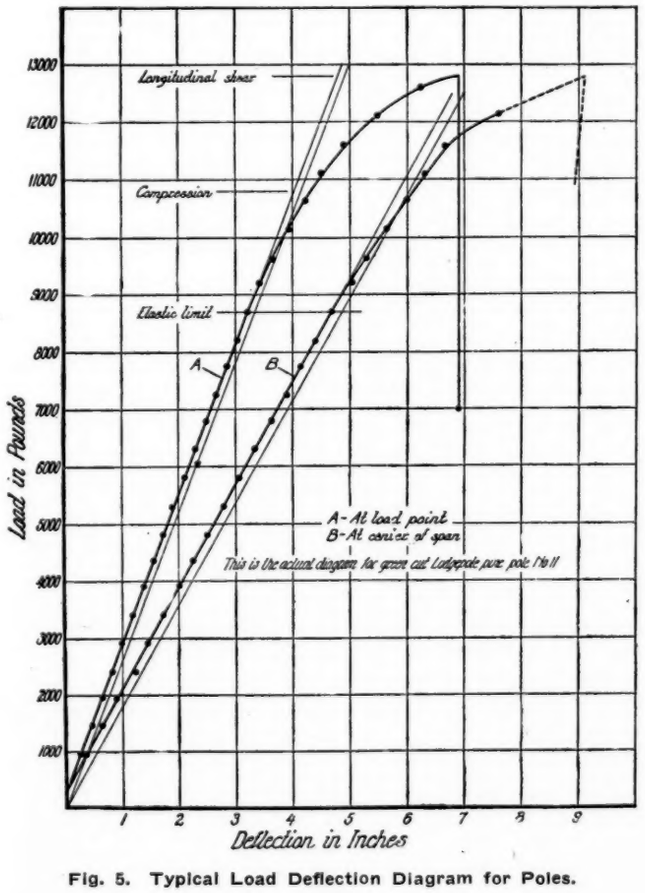


Fig. 5. Typical Load Deflection Diagram for Poles.

of the weight of the pole was added to the moment produced by the load. The comparative stiffness is expressed by the relation $\frac{P}{Id}$, when P is the load at elastic limit and I and d, respectively, the moment of inertia and the deflection at elastic limit measured at the load point.

The modulus of elastic resilience was obtained from the formula one-half $Pd \div$ volume. In obtaining the volumes there was found to be considerable difference in the shape of the poles. The spruce and pine were practically of even taper, and the volumes obtained by regarding the whole pole

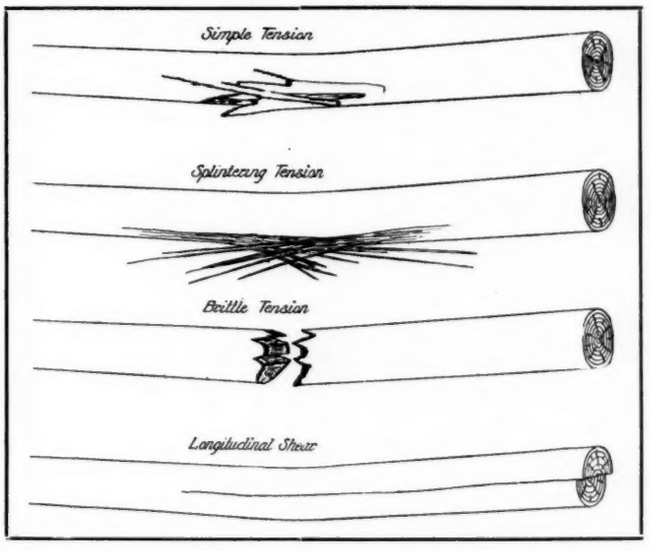


Fig. 6. Types of Failures in Poles.

as one frustum of a cone (from top to butt diameter), or as two frustums (from top to center and center to butt), were practically the same. In the cedar, however, it was found necessary, on account of the flared butts, to use a three-frustum method (from top to center, from center to load point, and from load point to butt). There was about 10 per cent. difference between results from the one and the three frustum methods with this species. In calculating the dry weight per cubic foot, a total shrinkage of 12 per cent. for the fire-killed pine and spruce was assumed, and 10 per cent. for the cedar. The air-seasoned pine poles were considered as being one-third below the fiber saturation point (that is, a four per cent. shrinkage in volume was assumed as having already occurred), and the others were assumed as being half-way between the dry and the fiber-saturated states.

Results of Tests.

Fig. 6 shows the common types of failures occurring in the poles tested.

The bend of the pole while under load was at a maximum near the center of the span for the first part of the test and about two feet nearer the load point at maximum load. This shifting at the point of greatest deflection was most noticeable in the poles having a tendency toward longitudinal shear. The effect of knots was in evidence only as localizing the compression wrinkles and occasionally at the starting point of a tension crack. In the cedar pole many shallow ax cuts had been made when the bark was removed, and tension failures took advantage of these breaks in the fibers. There seemed to be no consistent difference in the behavior of straight and spiral grain poles.

The typical failure of the western red cedar poles was a splintered tension about two feet from the load point. The wood separated easily along the annual rings, and the splinters were long and numerous. Probably due to this quality, as well as to the depths of checks, three poles failed in longitudinal shear, and in two other shear occurred after the maximum load had been passed.

In the air-seasoned lodgepole pine poles there were 18 tension failures and four failures from longitudinal shear. Of the 18 tension failures, nine were of the splintering type char-

acteristic of the cedar poles and nine were simple tension failures; that is, without the exhibition of brittleness or unusual splintering.

The typical failure in fire-killed lodgepole pine was a simple tension close to the load point. The wood often had a rather brash appearance, and, except for two poles, did not splinter to any extent. One pole was brittle, failing near the center, and one failed by longitudinal shear after the maximum load had been passed.

Pole No.	Western red cedar, cut green and air seasoned.		Lodgepole pine, cut green and air seasoned.		Lodgepole pine fire killed 10 years.		Engelmann spruce fire killed 10 years.	
	Top reaction at maximum load.	Maximum load at ground line.	Top reaction at maximum load.	Maximum load at ground line.	Top reaction at maximum load.	Maximum load at ground line.	Top reaction at maximum load.	Maximum load at ground line.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1	2,020	11,600	2,185	12,580	714	4,110	1,811	10,410
2	1,705	9,800	1,770	10,190			1,980	11,390
3	2,228	12,870	1,866	10,720	1,094	6,290	1,431	8,230
4	2,075	11,920	2,740	15,730	1,980	11,380	1,262	7,260
5	1,745	10,030	1,913	11,000	2,000	11,500	1,094	6,290
6	2,070	11,900	2,182	12,540	1,852	10,650	2,053	11,800
7	2,090	12,000	1,975	11,350	2,370	13,620	2,105	12,100
8	1,782	10,250	2,828	16,240	1,762	10,130	2,652	15,250
9	1,762	10,130	2,219	12,750	1,854	10,650	1,205	6,930
10	2,320	13,320	1,938	11,130	1,873	10,780	1,963	11,290
11	1,473	8,470	2,226	12,800	2,118	12,180	1,900	10,920
12	2,948	16,940	2,463	14,180	2,840	16,320	2,270	13,050
13	2,360	13,580	2,638	15,150	2,270	13,070	1,810	10,400
14	1,768	10,170	1,928	11,080	2,526	14,520	1,515	8,710
15	2,175	12,500	2,116	12,170	1,267	7,280	2,640	15,190
16	1,854	10,650	3,050	17,520	2,220	12,780	1,449	8,330
17	2,244	12,900	1,854	10,650	1,377	7,910	1,726	9,920
18	2,005	11,530	2,635	15,130	1,412	8,120	731	4,210
19	1,935	11,120	2,395	13,770	1,369	7,870	2,058	11,820
20	2,440	14,030	2,445	14,050	1,822	10,480	1,850	10,620
21			2,148	12,340				
22			1,991	11,450				
Average	2,050	11,785	2,250	12,930	1,830	10,510	1,775	10,210
Maximum	2,948	16,940	3,050	17,520	2,840	16,320	2,652	15,250
Minimum	1,473	8,470	1,770	10,190	714	4,110	731	4,210

Table No. 1. Top and Ground Line Loads Required to Break Poles.

In general the fire-killed Englemann spruce poles failed in the same manner as the fire-killed lodgepole pine. Two poles had brittle tension failures, and there were no longitudinal shear failures.

The fact that nine of the 42 air-seasoned and only one of the 40 fire-killed poles failed by longitudinal shear might seem at first to indicate that the checking of the poles cut from green timber is deeper than that occurring in the more slowly drying fire-killed poles. The fact, however, that the average shearing stress of the cedar proved to be about 15 per cent. lower than that of the other species, and further that the moduli rupture in bending of both green-cut shipments were higher than those obtained in both fire-killed shipments, shows that there was a greater chance for shear failures in the air-seasoned material than in the fire-killed, aside from any difference in the manner of checking.

Compression of the upper fibers, as shown by wrinkles on the top of the pole, occurred some time before the maximum load was reached. There was usually a noticeable increase in the bend of the load-deflection after compression became visible.

Table No. 1 gives the maximum load of each pole in terms of both the equivalent pull at the top and the actual load obtained in the testing machine at the ground line. This table is of value chiefly in comparing the results of these tests with those from other methods of applying the load, as all may be reduced to the reaction at the top support for poles of the same size.

Table No. 2 gives a summary and comparison of the average results obtained in the tests on the four classes of poles, based on the western red cedar as 100. On a basis of fiber stress developed it will be seen that:

1. Air-seasoned lodgepole pine is superior to western red cedar in all mechanical properties determined.

2. Fire-killed lodgepole is only 80 per cent. as strong as western red cedar at maximum load. In elastic values, however—that is, the fiber stress at elastic limit and the work absorbed to this point—they are practically equal. In stiffness the fire-killed lodgepole pine is quite comparable to the cedar, although the latter proved to be a more flexible wood.

3. Fire-killed Englemann spruce was inferior in all mechanical properties to the cedar and pine.

A comparison based on the fiber stress developed is equivalent to one based on uniform ground line diameter. In practice, however, it is customary to specify top diameters. On a basis of measured tapers and the fiber stresses found by test, the loads may be calculated for all shipments, using a uniform top diameter of 7 inches. Table No. 3 gives the calculated loads for such a comparison. The tapers used in the calculations were, for western red cedar, 0.098 inch per foot length; for the air-seasoned lodgepole pine, 0.077; for fire-killed lodgepole pine, 0.096; and for fire-killed Engelmann spruce, 0.130. These tapers do not include the flare of the butt. The length from top to the load point was taken as 19.5 in all cases. Since the strength of a pole varies as the cube of its diameter, it is evident that differences in taper will materially affect the strength. On a basis of equal top diameters it will be seen from Table No. 3 that:

Species	Seasoning condition.	Load at elastic limit.		Maximum load.	
		Average.	Ratio to red cedar.	Average.	Ratio to red cedar.
		Pounds.	*Per cent.*	*Pounds.*	*Per cent.*
Western red cedar	Cut green and air seasoned	7,800	100	12,000	100
Lodgepole pine	do	8,000	103	11,620	97
Do	Fire killed 10 years	7,470	96	9,500	79
Engelmann spruce	do	7,500	96	9,400	78

Table No. 3. Pole Strengths Compared on Basis of 7-inch Tops.

Species.	Number of tests.	Top diameter.	Volume.	Weight per cubic foot (oven dry).	Approximate age.	Rings per inch.	Per cent sap.	Per cent moisture.	Fiber stress at elastic limit.	Ratio to cedar.	Modulus of rupture.	Ratio to cedar.	Stiffness factor.	Ratio to cedar.	Modulus of elastic resilience.	Ratio to cedar.
Western red cedar:																
Cut green and air seasoned—		*Inches.*	*Cubic feet.*	*Pounds.*	*Years.*				*Pounds per sq. in.*	*Per cent.*	*Pounds per sq. in.*	*Per cent.*		*Per cent.*	*In. lbs. per cu. in.*	*Per cent.*
Average	20	6.98	9.5	21.4	84	18.4	32	15.1	4,430	100	6,885	100	6.75	100	0.94	100
Maximum		7.46	11.3	23.1	104	22.0	43	30.8	5,980		9,360		9.46		1.22	
Minimum		6.15	7.5	19.3	55	13.0	21	12.0	2,900		5,090		4.43		.62	
Lodgepole pine:																
Cut green and air seasoned—																
Average	22	7.36	9.9	27.6	162	34.0	48	21.9	5,280	119	7,680	112	8.62	127	1.00	106
Maximum		8.30	12.7	29.6	170	39.0	75	34.8	6,270		9,500		10.80		1.43	
Minimum		6.70	8.1	25.5	144	29.0	34	18.5	3,830		5,190		6.35		.69	
Fire killed 10 years—																
Average	19	7.50	10.7	25.4	155	31.8	32	16.9	4,327	98	5,481	80	6.25	93	.97	103
Maximum		9.25	14.5	29.3	189	42.0	60	36.2	6,130		7,480		8.72		1.62	
Minimum		6.75	8.9	21.6	97	17.0	19	11.2	2,230		2,230		4.42		.34	
Engelmann spruce:																
Fire killed 10 years—																
Average	20	7.23	11.2	22.3	164	34.3		16.3	3,489	79	4,378	64	4.97	74	.83	88
Maximum		8.00	13.7	26.3	210	46.0		32.8	5,210		6,070		6.97		1.25	
Minimum		6.00	8.2	19.0	112	23.0		11.9	2,180		2,180		3.30		.14	

Table No. 2. Results of Tests on Poles, Summarized by Species and Condition of Seasoning.

(*Continued on page* 44.)

The Rejuvenation of the Craneville Telephone Exchange

A Serial Story Telling How a Rundown Telephone Plant Was Rebuilt, Enlarged and Changed Successively from a Grounded to a Local Battery Metallic System and Later to Common Battery —Problems Encountered by Every Practical Telephone Man

By Paul Hamilton

Frank and Germany entered into the building of the farmers' line east with unusual enthusiasm. As soon as all the poles had left the yard, Frank, with three men, began setting them, at the same time attaching the brackets and insulators. He did not accomplish as much as he had anticipated as Mr. Barrows insisted that special care be devoted to lining, filling and tamping.

When the digging was completed, Germany assisted in completing the pole setting, then he and Frank with one assistant set about stringing the line wires. Owing to numerous trees along the road, they found it necessary to open and splice the wire quite frequently. Save for this objection, they gained time by carrying the reel on the wagon and pulling the line wire with blocks over a false arm, in half-mile sections.

Ten days from the time he signed his contract, Bill Munson found himself provided with telephone service as complete as that given the citizens of Craneville. The other installations were completed shortly after.

The question of operating was discussed. The subscribers presumed that they would ring each other as they had previously done. It did not occur to Frank that this would not be so, until he heard Mr. Barrows explain to the Doctor that the ringing would be done from the switchboard.

The reason assigned, Frank found upon inquiry, was that ringing from the board would be more reliable as the bells could be adjusted with greater precision, and suitable to the various resistance between each station and the exchange. In addition to this, the line terminated upon a drop, and for this reason there could be no code signal to be used when a Craneville number was wanted.

Mr. Barrows also explained that the code, that is the breaking of the signals into long and short rings, should be done with the key, even when using the hand generator, which was the practice during the evening.

About ten days after the line was placed in operation, one subscriber having been added, making seven, the weather closed down, making consideration of further line building a very doubtful proposition.

"I guess this about finishes the operations outside of town, Barrows," Mr. Rankin called out as the telephone man passed through his office, the path to the back door being blocked by three feet of snow between the buildings.

"It looks very much that way."

"I'm sorry the north siders didn't get around in time. I understand they are ready to file enough contracts."

"Well, they had first choice, if they had wanted to take advantage of it. I guess they let the Runkel crowd hold them off too long."

"Well, you'll have both lines to build in the spring. Enough of the other crowd has pulled away from Runkel to get the thing started. Farmers are pretty much like other people. They don't like to see their neighbors have an advantage over them. You've got a good line of poles over toward the county line now, haven't you?"

"Yes, as far as Munson's corner."

"I see. Two miles farther will take you over. You aren't going to make very much on that line the way you've put it up?"

"For the present I'll be lucky if I don't lose money. It never will pay a fair dividend, but it's part of the business."

"You might get another line east; that would help some."

"Yes, the poles will carry several, if the subscribers are within a reasonable distance," replied Mr. Barrows, who could not anticipate what the liveryman was leading up to.

"There's considerable business between here and Berkely, the county seat of the next county. Reckon you and that fellow over there could get together on a toll line."

"It had not occurred to me. What particular interest exists between the two towns?"

"I don't know," answered Mr. Rankin. "I thought, maybe, so long as you were so near there it might pay to get the other fellow to come out and meet you."

"There are several things necessary in order to justify the investment of capital in a toll line. Of course, with my share of the pole line already built, I might be able to see something in it where the other fellow, not having joint use for his poles, could not."

"No, perhaps not. I see what you're driving at. You can't always tell how deep the soil is in a field without going over it with a spade. Sit down," invited the liveryman, "Let's thrash it out in a general way. First and foremost, old man

"It looks as if there might be some toll business."

Pester has a daughter married to a preacher over there. Sam Dillon's wife, living here, came from over there 'cause this is about as close as she can live to her folks with Dillon and be certain he won't be beat up every meeting night. That establishes pretty close family connections, without mentioning miscellaneous aunts and cousins scattered all the way between here and there beyond. As a telephone asset, I guess they don't count for much. But there are some other things worth considering.

"Berkely is a lumber town, acres of good cypress all around there. We have brick, tile and gravel. They've got a small shoe factory, and Craneville folks don't go barefoot. We've got a cannery and they raise scads of tomatoes and truck over that way. It's 22 miles 'tween here and there by rail and less than 12 straight across.

"It used to be that some of the merchants over there shipped to Craneville and hauled their goods across, on account of the delay in transferring at the Junction. It is done now on rush orders, but not enough to be noticed. The Banner

generally makes special note of such cases, asking the Berkely paper to "please copy." I've told them a dozen times to cut it out; that the more business done by the railroad here, the better treatment we could expect. But somehow a newspaper man ain't altogether human about some things."

"It looks as though there might be some toll business."

"Now there's Williamsport, off to the southwest," Mr. Rankin went on. "Well, I've never been there, and I haven't been

"You had better call all the parties on the line."

to New York either. I just suppose it's there because it shows on the map. Oh, yes! I've seen folks that have been there. They speak of it same as you hear folks speak of 'the year of the big fire'—'the year I went to Williamsport,'—just like that! It's a kind of a milestone to mark time by. If I wanted a place to start from, I think I'd visit Williamsport and that would drown out all that happened before.

"I haven't anything against the place, mind you, for I don't know anything at all about it, and the common run of folks around here don't either. I don't believe it would be worth while considering running a toll line over there. Good enough class of people and all that, but there are no business relations between there and Cranesville. But with Berkely it's different. I'm going over there one day this week. If you want to ride along, you're welcome."

"Thank you, perhaps I will."

"There was another thing I wanted to mention. Your taxes won't be very heavy this year. But they may try to stick a heavy assessment on you next spring. I kinda bluffed them down by saying that the thing wasn't payin' me anything. They'll probably get it into their heads that you are making money and fix the assessment accordingly. There may be someone around even ahead of the assessor to talk it over with. Don't put a price on your plant without knowing who you're talking to. Let me know if anyone around Craneville talks about buying in. Maybe I can find out what's in the wind. They struck the fellows at the cannery last year by making a bluff bid which was refused. Don't let them play any April fool joke on you."

"Thanks, I'll remember that. Well, I imagine today will be a pretty busy day. Can you spare Miss De Land for the whole day?"

"Poor weather for real estate, and I reckon the telephones will be used more than usual. You better keep her. She's in the exchange helping out now. How is she doing?"

"Oh, she gets along nicely, now, and tries to please people."

As Mr. Barrows came into the exchange, Germany pushed open the door from the outside. He had shoveled a path up the alley and cleared away the snow from the small platform which represented a porch, without a canopy, of course. The door was scarcely closed, when Frank came in.

"Just in time to be too late," Germany remarked.

"Say, Mr. Barrows, if we hadn't done something last summer, this would have been the finish of the Craneville telephone business," said Frank. "The wires in the south end of town, that we didn't get to, are about all down in places. Otherwise we're in pretty good shape. Germany can go down and shovel the snow away from around the poles and then we can put in new wire."

"Sure, Germany will blow it away. I'm a regular blizzard," responded the Teuton.

"What shall we use, twisted wire or bare? The instruments down there are still working grounded. Shall we cut them metallic?"

"No. Just take twisted pair and string it in temporarily. Drive a spike in the poles to keep the wire up. Do it in a temporary manner, to get the telephones back into service as quickly as possible. We may leave it that way until the light people get around to go on with their work. How many lines are out?"

"Nineteen is all. It will take a bunch of wire though."

"Well, it won't be entirely wasted, for we can take it down and transfer it to the new poles later on."

"How about the drops? About half of them are down also."

"You'd better splice them out, if you can. Where it's necessary to run in a new one, use iron wire. They'll all have to be junked in the end anyway. Very few, if any, would be long enough to transfer to a rear approach."

"All right. Well, Germany" said Frank, "we'll go upstairs and load you up. Where is Doc?"

"He had some sort of an examination this morning. He said he'd be here about eleven. I'll leave word for him to join you when he gets here," replied Mr. Barrows.

"Better have him fix up a couple of instruments. There are two I think we'd better change while we're down there. He can go out with us after dinner."

"All right, Frank."

As Frank and Germany left the room, Miss Dietz said:

"Mr. Munson called in a little while ago to test the line. He can get us all right. He says his bell doesn't ring as well as it did, but not to send out to fix it because they can hear it all right."

"You had better call all the parties on the line and see if you can get them."

"I can get all of them but Swanson. Mrs. Dike answered their call and says they're not at home. If anyone on that line is going to be away any length of time, they have a neighbor answer their ring," the operator explained.

Anticipating a possibility of numerous calls which would require his personal attention, Mr. Barrows prepared to devote the day to taking care of several details of the clerical end of the business which had been allowed to fall behind. Among them was a comparison of the estimated and actual expense of building the farmers line.

At the beginning of the enterprise, he had set aside an amount equal to $100 per mile as the estimated investment. A part of this amount was realized by considering the poles which had been removed from the Craneville plant, at a valuation of from two to four dollars.

The actual expense, without taking account of his own time, which would have been classed as supervision, exceeded the estimated cost by nearly $20 per mile. The book value of the line in operation amounted to approximately $700. Without setting aside a reserve for replacement, there would be a balance to the credit of this particular portion of the plant.

It was his intention to treat the farmer lines as a separate plant as far as possible. He decided to carry out this plan, at least for a period sufficient to determine the ratio for the basis of a distribution of the revenue.

(To be continued.)

Convention Program of Missouri Telephone Association.

The annual convention of the Missouri Telephone Association will be held at the Sexton Hotel, Kansas City, Mo., on May 6 and 7. Invitations have been sent out every few days to 650 telephone companies and C. J. Meyers, chairman of the convention committee, reports that from expressions already received there is every indication of a record breaking attendance at the convention. Fourteen exhibitors have already reserved space at the Sexton Hotel. The program of the convention has been arranged as follows:

WEDNESDAY, 10 A. M.

Address of welcome, by Hon. Henry L. Jost, mayor of Kansas City.

Response, by S. T. Neil, of Clinton, Mo.

President's address, by Houck McHenry, Jefferson City, Mo.

Reading of minutes of last meeting.

Appointment of committees.

New Business.

WEDNESDAY, 1:30 P. M.

"The Future of the Telephone," by H. C. Todd, Maryville, Mo., a director of the National Independent Telephone Association.

"Interstate Commerce Commission," by F. B. MacKinnon, secretary of the National Independent Telephone Association, Washington, D. C.

"Standard Specifications for Railroad Crossings," by L. M. Jones, general superintendent of telegraph of the Santa Fe Railroad, Topeka, Kan.

Question Box.

THURSDAY, 9:30 A. M.

"Methods of Increasing Revenues," by W. L. Golladay, Holden, Mo.

"Relation of Utility Companies to the Public," by Hon. W. G. Busby, author of the Missouri public service act, Carrollton, Mo.

Discussion of requirements of "Our Public Service Law," conducted by Hon. Frank Lathrop, telephone expert of the Public Service Commission of Missouri, Jefferson City, Mo.

THURSDAY, 1:30 P. M.

"Concrete Poles," (illustrated by stereopticon views), by C. L. Brown, general manager of the United Telephone Co., Abilene, Kans.

Report of committees.

Miscellaneous business.

Election of officers.

Adjournment.

THURSDAY, 7:00 P. M.

Banquet at Sexton Hotel.

Report of Meeting of Directors of Ohio Association.

A meeting of the directors of the Ohio Independent Telephone Association was held at the Chittenden Hotel, Columbus, Ohio, on April 23. At the meeting there were in attendance, including the board of directors, about 40 telephone men from practically all parts of the state.

The first order of business was the election of directors to fill four vacancies on the board. The following gentlemen were elected: W. B. Gregson, New Philadelphia; Wm. M. Heseltine, Delaware; W. H. Bowron, Caldwell; Frank A. Knapp, Bellevue.

A committee of seven, to include the president, was appointed to determine the time and make arrangements for calling district meetings or a general meeting of the association. The following gentlemen were appointed: D. E. Fuller, Clyde; J. G. Collins, Logan; D. O'Dell, Springfield; E. O. Arnold, Ct. Vernon; John McDowell, Ironton; V. W. Peck, Cardington.

In the matter of appraisals or valuations ordered by the Public Utilities Commission of Ohio there was some discussion at length. It was the sense of the meeting that it would be of material benefit to all telephone companies if they might get the expressions and interpretations of the commission; the plans and methods of other public utilities required to make similar appraisals; the plans and methods of the Interstate Commerce Commission having in charge the appraisal of telephone properties doing interstate business; the results of committee work of the national association; and the consideration of depreciation, overhead charges, intangible values and other important items in the treatment of which practices and interpretations differ. Some economy in the preparation of these appraisals may be had by the adoption of uniform methods, consultation with other companies, and the presentation of reports that will be in form and matter acceptable to the commission.

To deal with these matters a committee was selected consisting of D. J. Cable, Lima; G. P. Thorpe, Wilmington; W. B. Gregson, New Philadelphia; C. Y. McVey, Cleveland; and G. R. Johnston, Columbus. The committee organized by the selection of Mr. Thorpe as chairman and Mr. Johnston as secretary. In the consideration of forms, unit costs and the determination of values it is expected that the committee will have the assistance and services of auditors, engineers, and others connected with the larger telephone companies.

The committee invites expressions and inquiries from the telephone companies on this subject. The association officials have been given to understand that under this order it is not necessary for public utilities to employ appraisal companies to make the inventories and valuations, and that upon cause being shown reasonable extensions of time may be had for the preparation of reports.

As to appraisals the Independent telephone companies of Ohio are invited to address the members of the committee, or the secretary, G. R. Johnston, in care of the United States Telephone Co., at Columbus.

A Defense of Private Ownership.

"You call up your home in Paris from Chambery, get it tomorrow, and tell your wife that you won't be home last night," is the way foreign telephone service was epitomized by T. P. Sylvan of the New York Telephone Co. in a recent defense of private ownership of telephone and telegraph lines at a "dinner-discussion" of the Economic Club of New York City. Mr. Sylvan's remarks followed a speech by Congressman David J. Lewis of Maryland.

Mr. Sylvan in opening his address said it wasn't a matter of ownership, but of organization, and later stated that public ownership with its changing political conditions does not admit of the permanency of personnel of a privately owned concern, a fact which was a decided detriment to efficiency. The postal system, he said, was not by its nature a fit subject of comparison.

He said that Mr. Lewis got his information concerning the statistics in this and foreign countries from "sources pretty badly tainted" and proceeded to show where the telephone system in the United States is far ahead of the countries mentioned in the matter of efficiency and in lower rates, taking into consideration the nature of the service given. He stated that the European governments did not take over telephone companies because they could run them better, but because of military protection and necessity. A statement he made, which received great applause, was that it was all right for the government to run three such services as the postal, telegraph and telephone together, but when a private concern conducted two of them, the government forced them to divide.

Trust Form of Organization Questioned as to Efficiency

Reasons for Failure of Trust Form of Organization and Success of Independent Concerns of Medium Size—Law of Maximum Production at Minimum Cost—Abstract of Address Before Chamber of Commerce of the United States

By Hon. Wm. C. Redfield,
Secretary of Commerce

If I had a son whom I wanted to bring up in the business world, I should put him, if I could, in a small factory, where he would have to learn the intimate details of the shop and the office at first hand. It was my fortune to go through everything in the factory, from the bottom up. I remember very clearly keeping the books for an hour in the morning—that was all that was necessary—and in the afternoon packing such few goods as were made, marking the cases, loading them on a truck, and shipping them; in the meantime browsing around the little shop to determine the fundamental elements of the cause of production. I would not for the world have lost that training—the hunting around a little factory several hours every day, questioning everything and doubting everything until it was determined, until every conceivable factor, visible and invisible, that entered into the cost of production was a matter of intimate, personal, close daily association and knowledge.

There came one day into the office a gentleman who said that he had organized all but one of our competing concerns in such a way that, if we would consent, a trust could be formed which would practically control the business as it then stood. He was very desirous of having this particular concern enter into that organization. My own part in the business was but a modest one, and my senior partner took it under very serious consideration, and discussed it at length with me. After a number of days we decided that the one thing in the world we could not afford to do was to enter into any such organization at all; that to do that would be to tie ourselves up with the weary and the tired ones; to give over our high average of effectiveness to a low average of efficiency; to help others at our own cost and not to aid the business of the industry as a whole. At the end of a number of days we told the promoter we would give him a good fee if he would get up his trust and leave us out. The trust was never formed.

Some years later an acquaintance was doing a considerable amount of business in an industry which in his temporary absence was formed into a trust. He went to the parties that formed the trust and asked them why they had included him in their plans. They gave some reason, I do not know what, except that it was not satisfactory to him, and he accepted it cheerfully and went back into what I think at the time was considered the outer darkness. The fact was, however, that at the end of a very few years the trust had ceased to exist and the independent small man that was left out was and is prosperous.

The Failure of Trusts.

That particular trust, as other trusts, could not endure the competition of the smaller, more keenly managed independent concerns. It would be perfectly easy for me to go over with you the list of these gigantic organizations that have ceased to exist, that could not bear the burden and heat of the day. A much larger list, I think, could be easily placed before you which have entirely failed to remunerate in the way of dividends any of the holders of their common stock. I believe it is a fact that is easily demonstrated, but which to my knowledge has never appeared in our public discussions of the subject, that while the number of these gigantic organizations which have been conspicuously successful is very large, it is nothing like half of those that have come into existence. Therefore, I should like to ask this question for your thought as business men. Suppose I came to you today with a proposition to unite 25 concerns in various parts of the country, having their own local traditions, their own differences of equipment and management, into one company with a central office, and I said to you, what you were all familiar with 20 years ago, that this thing was going to save largely in overhead expenses, was going to reduce the transportation and executive salaries, and was going to do away with selling cost, and put that whole thing before you, I wonder how many practical factory managers would give it today a moment's consideration. I know of many that would not.

Merger Theory Outgrown.

I doubt if there is any expert production engineer today who would argue any more that the way to get efficiency in cost production is to take 10, 20 or 30 factories unrelated and unite them into one gigantic organization. I believe myself that it was true, as was told me 25 years ago it would be true, that this particular phase of combination carried with it the seed of its own decay. I believe that that decay is already here. I believe it would be stated by most thoughtful producers today that the strength of one of these great organizations is no greater than the effectiveness of its most effective plant, and that millions have been lost in winding up the plants of minor efficiency in order to make those that are more effective carry the burden better.

The history of these organizations on their industrial side shows that process continually going on. Nay, more, I think it is a fact, and I am trying to look at this thing precisely as I used to browse around the factory myself and look for facts and not for opinion—I think it is a fact in almost all, if not all, the great industries that have had these great gigantic organizations, there have grown up side by side with the so-called trusts, independent organizations, strong, aggressive, and carrying an increasing share of the business, and that today it is true that the concerns in these industries in which the trusts exist, which pay the largest percentage of return upon their capital, are the smaller independent concerns. I think that is absolutely true. I know it is true in some cases. It would be perfectly easy to take up line after line in which 10 or 15 years ago a trust dominated the whole situation and show that the independent concerns, starting since, or running independently at the time, have come to be, and are now, the more profitable of the two.

I doubt greatly if finances could be had today in any market in this country for a trust of the kind that was established 20 or 25 years ago. But you say we must have large production in order to get low cost. Yes; true; I admit every word of it, but it says nothing. How large? Not necessarily enormously large; not necessarily the same in any two kinds of business, and not necessarily the same in any two departments of the same factory. In one line of work a production of 1,000 units will bring low cost; in another you could not afford to make 1,000 units at all. In another you must make 100,000, but it does not follow

at all because large production is needed to get low cost that it must be huge production, or that it must be either 1,000, 10,000 or 100,000 units. It may be neither; it may be one or all three in the same factory. Now, I believe any expert factory manager would tell you this; that the thing that was most important in getting cost down was balance of shop and a sufficient output to keep the service continuously operating at its maximum effectiveness. He would tell you also that if 10,000 units would permit a balanced shop to operate in all its departments continuously and steadily in perfect balance, he could not afford to make 100,000 units, because it would cost too much.

It would be very simple to lay upon this table the elements of economy arising from such an organization. They are superficial things, and anyone, as a friend of mine once said, who had a keen sense of the obvious, would discover them at once. But the elements of cost rise the moment you press production beyond the point of balance. So far as I know, that phase of it is new in the discussion of the subject, but I never knew a careful factory superintendent that did not realize it to the core. I have often wished that the factory managers talked more about this question, and that the men who have not had the experience talked less. Let me take, for example, a certain tool. We will call it a wrench, if you choose. I believe it to be a normal experience that you can not afford to make less than a certain number, because the cost is too great; that you find, let us say, that you can not afford to make 1,000 at a "run." Factory managers always consider things at a "run," not by the year. They know too much to make it in several "runs," if they can make it in one. You find that you can afford to make 5,000. You find that you can afford much better to make 10,000; and you are doing pretty well on 10,000, indeed. When you make 20,000 you still do better, but very little better. The percentage of cost reduction between 5,000 and 10,000 is very large; the percentage of reduction between 10,000 and 20,000 is very small, and you can not afford to make 30,000 at all; they cost too much.

A Law of Production.

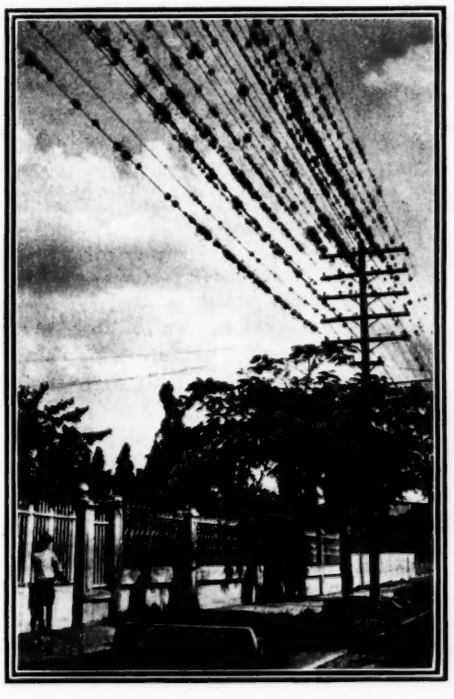
My own belief, then, as a practical factory man of over thirty years' experience, is that this well-balanced plant—and I put great stress upon that question of balance in a plant—which operates on a sufficient output to keep it moving steadily is the most effective plant—and that in that law you find the solution of the fact known to all of you that the small independent concern today has in almost every business grown up side by side, competing openly with the great organizations which we fear so much.

I think it may interest you to know that quite independent of factory life, and in another sphere wholly, a very careful investigation that has just been made tends to show that in retail business it is not the great department store that distributes most cheaply, nor is it the small retail store, but a single unit of medium size confining itself to one or at most a few lines. I believe, gentlemen, that there is a law of maximum production at minimum cost, beyond which to press the production means to increase cost; that that law has operated to the injury of many of the great industrial combinations and means, in my judgment, that they may not be, and in some cases have not been, founded upon a true economic basis. I know that it would be said that you need immense production in certain lines. That is true, and I do not say that the maximum point of production at lowest cost is the same in all lines or the same in one line at different periods, but there is a law which operates inexorably, beyond which you can not press the production without increasing the cost of every unit of that product, and that itself will regulate—I do not say it is the only thing needed to regulate—but it will regulate, and has regulated, these great organizations to prevent their ever acquiring the dominant power which some fear.

I have spoken very frankly, but on the factory side only. I am not going to touch upon the alleged misdeeds of these combinations, because it would take some time, and I have not the knowledge of that subject, save as I gather it from public discussions, but I have come to believe that this law of maximum production at minimum cost is the fundamental industrial factor which is controlling. If the men in industry whom I know are well-informed—and I have talked with many of them—I do not know a single factory manager of rank and standing who would enter today of his own will into one of the great combinations that 20 or 25 years ago were so largely promoted among us.

Telephone Troubles in the Tropics.

The wires shown in the accompanying illustration, which is presented through the courtesy of Leslie's Weekly, are not encased with ice as a result of a sleet storm as might be conjectured at first glance. The photograph was taken in Ponce, Porto Rico, and shows a fine collection of air plants upon the telephone wires. The humidity of the atmosphere is so great that the plants continue to grow until they are removed by linemen.



Sleet Is Not Prevalent in Tropics, Air Plants Are.

An Interview with Hungarian Telephone Officials.

Preliminary to important telephone changes to be made in Hungary a number of officials of that country spent several weeks studying the telephone and telegraph systems of the United States. These officials were Otto de Fejer, counsellor secretaire; Barnat Paskay, counsellor technical; Jeno Kaiser and Akos Terstyansky of the Royal Hungarian Post and Telegraph Administration. Their investigations were made in company with A. E. Ledeczy, who has been in this country about a year studying the telephone business.

Whether they spent a day together in their quest for information, or each had gone his separate way investigating some particular department, inspecting some special installation, studying methods, or pursuing some individual line of inquiry, each night it was their custom

to meet at their hotel before dinner for an hour's conference upon the work of the day. After the last of these conferences The Telephone Review was fortunate in securing an interview with the Hungarian officials for the purpose of obtaining an authoritative statement regarding the comparative quality and expense of telephone service in America and Europe. This interview follows in part:

"A comparison with our own country is impossible," said Mr. de Fejer. "Your service is the best in the world. It is much more difficult under government ownership, for very many reasons. The dignity of the government will not allow it to send out canvassers to solicit business. It cannot approach prospective subscribers and induce them to take a telephone. It must wait until the business comes to it. For this reason it is impossible for a government to estimate the future growth of telephones as well as a privately owned corporation can. A private corporation is a business concern, and the government is not. All it can do is to base its plant upon experience and official city reports of new building developments. This attitude of a government in not canvassing for business makes impossible the intimate study of telephone development that is made in America.

It is only when the telephone facilities that have been provided for a new territory have been used up that it is possible to apply for a government appropriation for additional facilities. These applications have to pass through the hands of several government departments and finally reach Parliament where it is debated, and the time when the money is granted is very uncertain. After the money has been appropriated, the new lines or new buildings that are required have to be constructed. In the meantime, the old central office is overloaded with traffic, and, of course, this interferes with the quality of the service which the operators can furnish.

Your exchange service we find most excellent everywhere. In my opinion this is, first, because you have very excellent and highly trained staffs of operators and supervisors. Your schools for operators are a wonderful institution. Your central offices are excellently managed. Your supervisors are able to keep the force up to the highest effiicency, and by coming in on the line they are able to reduce the operators' loads when they are pressed. Then the chief operator is a very excellent thing also. Your supervision is perfect. Flash here and the operator asks immediately "Number, please?".

Then there is the very great efficiency of your information offices. In our offices we also have a kind of information, but we give only the name of a subscriber, or the number of a station, and nothing else.

I find also your operating rules bring everything to the simplest terms and meet every question that the subscriber can ask, and the operator does not have to stop and think what she should say.

Last, but not least, is the great facility you have for dismissing an employe for inefficiency. This is very different with us. In a government system inefficiency alone is not considered a cause for dismissal, and it is impossible to discharge an employe except for some very serious offense.

Your observation service also is splendidly conducted. We observe service to some extent, but we do not carry it as far as you do, nor do we make use of the information to correct faults and improve the service, so that it is of little value to us in comparison.

Your traffic department as a whole is a most highly developed and efficient organization. Your traffic and plant and commercial departments all co-operate not only within themselves but with each other. That is what you call 'team work.' selves but with each other. That is what you call "team work." ment. I must emphasize "team work." We do not have a traffic department in the meaning of your traffic department. The service which we give is not your service.

We have not the standard of service that you have. If an operator makes a connection without too much delay, we consider it satisfactory.

We have small operators' schools, but we do not give the same course of instruction that you do. We expect to install a new operators' school and are going to copy your schools here.

In Hungary we have flat rates only. We make no difference between business rates and residence rates, but we intend to adopt your message rate system."

"It is claimed by advocates of government ownership in this country that our rates are higher than the rates in Europe, and yet you say that your rates are higher than ours. How do you explain this?" asked the interviewer.

"You must consider the real value of money in our country and in yours. A flat rate of 300 crowns, which is about $60 in American money, may seem low, but on the basis of the real value of money, that is, its buying power, you can see that it is very costly. The buying power of $60 in our country would be equal to at least $150 in America. So you can say $150 a year for flat rate service in a town of 30,000 stations is high. Places are crowded with people who want to telephone. All the neighbors and their friends come to use the telephone of a man who has enough money to pay for it. This also makes a very high calling rate per station. This forces the government to introduce the message rate system so as to make the telephone available for small users as well as large. Our people consequently are not very well educated in the use of the telephone.

In all European countries the cost is not comparable with the United States on the basis of the number of dollars charged, but on the basis of the value of the dollars.

Our flat rates are for districts. In the same district the rates are cheaper in proportion than our toll and long distance rates.

You ask about transmission efficiency. You can speak with the same transmission efficiency much further than we can. You have better operators and switchboards and everything. The quality of your operators and your apparatus is better than ours.

We have plenty of money, but it is harder for us to get an appropriation from the government for improvements than it is for you to raise money in America.

Your public telephones are very interesting, especially those in restaurants. Telephones are everywhere. Such a thing is impossible in Europe, because our people are not accustomed to it as you are here. You seem to have a telephone on every corner; everybody uses the telephone.

In Budapest, with a population of about a million, we have had in one central office 18,000 lines serving about 26,000 stations. About four years ago this central office became overloaded and application was made for an appropriation to construct and equip a second exchange. In November, 1912, a temporary relief was afforded by the construction of a small exchange accommodating 4,000 lines, and during the coming summer the new exchange will be cut into service with 15,000 lines. This will make Budapest the only city in Hungary which has two exchanges.

These two exchanges necessitated a new development in traffic engineering in Hungary. With one exchange, no trunking was necessary and the operating was very simple. The introduction of the other exchange complicates the system and necessitates the making of thorough investigations for new operating rules and methods for this kind of traffic between exchanges, and the government sent us to America to study the real operation here to get a proper idea of how it should be applied to our exchanges. We believe that we have the information on this subject. We hope that by transplanting it to our country we may be able, if not to equal, at least to approach the same results that we have seen here."

Practical Subjects—Letters and Discussions

Red Ants and Fuses.

Friday, April 24th, I found two bad fuses, both of which were on short lines, and I could find no cause for the trouble. Of course, I was greatly puzzled. Sunday I read in TELEPHONY of the lead eating beetle found in a fuse by the Chicago Telephone Co. I decided to investigate the ones I had trouble with, so the first thing this morning I opened both fuses and found them to be full of large red ants.

The fuses were 7-ampere capacity and fibre incased. There is no doubt in my mind but what the ants destroyed the fuse and I am sending you the pieces so you can examine them for yourselves.

F. K. Noel,
Axtell Telephone Co.

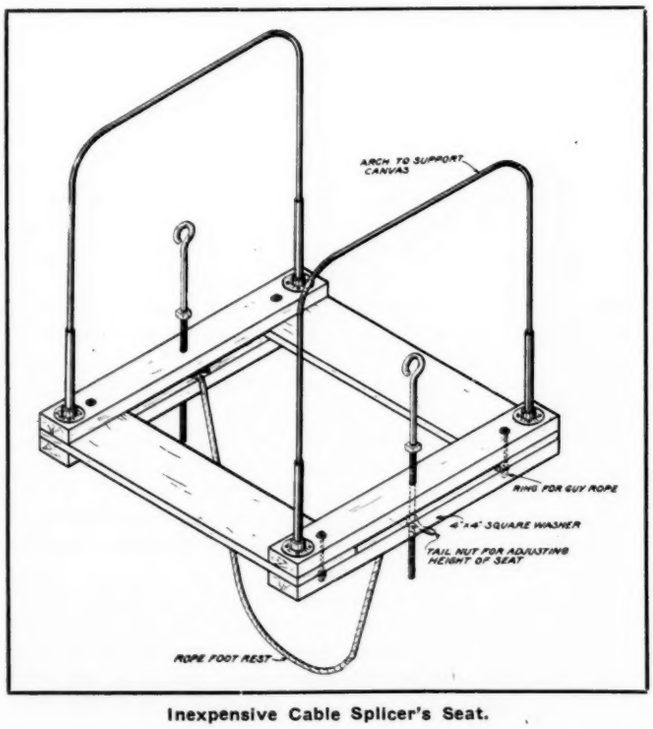
Axtell, Kans.

A Cable Splicer's Seat.

A convenient and inexpensive cable splicer's seat is shown in the accompanying sketch. It is easily erected, its distance below the messenger is readily adjustable and provision is made for efficiently supporting the protecting canvas used in bad weather.

The construction of the wooden platform is clearly shown in the drawing and requires no explanation. It is recommended that the end pieces be made of tough hardwood, as they have to stand considerable strain where the supporting hook-bolts pass through them. These hook-bolts, by which the seat is suspended from the messenger, are made from ⅞-inch round iron. The nut at the upper end of the threaded portion prevents the bolt from dropping through too far and making it awkward to hook over the messenger. On the lower end of the bolt is a "tail nut." It bears against a large washer on the under side of the platform and is screwed up or down to regulate the height of the seat.

At each corner of the platform is fastened a pipe railing



Inexpensive Cable Splicer's Seat.

flange and into this is screwed a piece of ⅞-inch pipe about one foot long. The two arches for supporting the canvas are made of ½-inch round iron and can be readily slipped into these pieces of pipe after the seat has been erected. The guy ropes are fastened to the rings shown on the under side of the platform, while the rope tied around the hook-bolts and hanging below the platform, forms a convenient foot rest for the workman. In cold weather a heavy canvas bag may be fitted to the opening in the platform to protect the feet and legs. The hook-bolts can be removed and the short pieces of pipe at the corners unscrewed from their sockets when it is desired to store or ship the outfit.

Ingersoll, Ont., Can. Benj. Olney.

Letters to His Old Boss.

Bessemer Hump.

My Dear Pinder:

I heard from the Dobson girls. They're going on past here and are going to stop on the way back.

You no doubt remember Bill Flynn—he was an all around telephone and saloon man. He come in to see me the other day—broke, of course. I gave him a job for a week painting poles. He headed for home, so you can begin thinking up ways to get rid of him.

I like some of your arguments about the valuation of a pole in the line, but you haven't told me any fixed rule I can follow. But to begin where I left off: After I'd put up the two propositions (about a pole in the line and one in the yard), the board members began arguing among themselves. I didn't have time to listen to them, as I was busy thinking in my own interest.

"How about the cost of them poles again?" the chairman asked, getting his pencil ready to do some figuring.

"Four dollars is the original book value."

"You have been making a replacement charge, haven't you?"

"You mean I have been setting aside a reserve to make replacements of any part of the plant as required. Poles are counted in with the rest of the plant."

"Very well. Your estimate has been placed at 10 years, I believe. That makes a reserve of 10 per cent. necessary. Now why not consider a pole at its cost value, or $4. In 10 years you should have your $4 laid away at 40 cents a year. If at the end of 10 years you don't replace the pole, you have no book value at all. Now take the whole plant. If you haven't replaced anything and your plant is still running, you have no book value at all. A large number of your poles right now have been set more than 10 years. They still have a tangible value which we should assess."

"Suppose then, I re-arrange my depreciation charge on a basis of 12½ years—that would be an 8 per cent. depreciation charge. It will leave a fixed value for assessment."

"But your poles represent a greater value than their original cost, even less your depreciation charge. Actually your poles have appreciated in value. Many, if not all of them, are worth more now as they stand than when they were new."

"How do you figure that, and does that justify this appraisement of $10 a pole?"

"I figure it like this: Last year you took down 20 old poles on account of putting some cable under the ground. My brother-in-law paid you $3.25 apiece for them. You wanted $4. I figure a pole that's working is worth more than one that ain't."

"It seems to me we have gone a little too far," the lawyer broke in. "If Mr. Dudley made a good bargain in selling his poles, that's his good fortune. It doesn't signify the market value of poles in general."

"Now we have another point of view." I said, "Market value as I understand it, can be most anything; it is a very uncertain basis. Circumstances govern it to a great extent. One may be forced to sell and the buyer is aware of the fact, or the buyer may not be aware of it. The property in question may be absolutely necessary to the buyer, and the seller may

be so advised; or the seller may not know it. Again, it may be a purely speculative proposition. The buyer may be convinced that the investment is a good one, while the price paid may give the seller a satisfactory profit upon his investment."

"I guess we'd better stick to the real or book value; one or the other," said the chairman.

The thing wasn't at all clear to me. I wanted time to decide what I wanted. I could see future troubles any way I looked at it. I concluded to add enough fuel to the fire to keep it burning nicely 'til I could decide what I wanted.

"Now," I went on, "suppose I accept your assessment of $10 a pole. Suppose also that I have set aside a reserve fund equal to the $4 book value. When you get over to a personal property schedule, you are going to assess me again for that reserve fund, whether it is in money or securities. That means that I am to pay taxes on a $14 assessment. If I didn't have the fund but had already invested it in poles, you expect me to stand for an assessment on them when you already have included their value in the working plant assessment.

"Then again: I have poles right here in town that the city government has deprived of their value, and in addition are to be a dead expense to me. That new ordinance which moves the curb back three feet, makes it necessary for me to move about 40 poles. On the income basis you mentioned those particular poles will be exempt for 10 years to come. They represent recovery value only on the basis of intrinsic worth and the market value will scarcely pay for the removal."

"Recovery value and market value in that case are about the same thing," the attorney commented.

"Perhaps, but I can't see it that way. To me it is like this: I've got to set that line inside the curb. There are three ways of doing it: Build a new line from the ground up and place the old line on the market to the highest bidder; that would establish a market value if there were real competition. However, it is more than probable there would be no competitive bids.

"Another plan is to move the old line as its stands, which entails a large outlay on account of keeping it in operative condition—a working part of the plant at all times. Much of the material is not worth the expense of moving, while in its present location it is probable it would be of service several years with a small cost for maintenance.

"The third method is to build a line composed of old and new material. When old material is used, it would be as a substitute for new. Whatever its value was considered on the books, not to exceed the cost of new material, of course, would be the recovery value as I understand it."

"Then as the recovery value of your plant you would consider that portion which you could use in rebuilding in lieu of new material which would have to be bought outright?"

"If such a situation were possible, yes."

"Then where would the depreciation come in?"

"Don't dig up any more possibilities," said the chairman, Guess we've got enough for today."

So that's the way we left it for that day, but the end was a good ways away. I'll give you the next section later on.

Yours truly,

Little Dudley.

Opportunities for Competent Men in Australia.

As a result of the paragraph which appeared in your valuable journal some months ago relative to the opportunities for competent telephone men in Australia, I have received applications too numerous to mention, but 98 per cent. had forgotten to enclose stamps or vouchers. A great many of the letters had not sufficient postage but those which did I have replied to direct.

All of the applications were sent along to the proper authorities and I have been advised as follows:

"While there are good opportunities for expert telephone mechanics, it is not practical to guarantee employment in the Commonwealth service to those outside Australia. Should they wish to obtain positions in the service, they must come to Australia *at their own risk*."

There is very little doubt but that they would very soon secure employment, if qualified, as temporary hands at a rate of pay equal to £168 ($818) per annum and, as examinations are held toward the close of each year for permanent employment, they would thus have opportunities for entrance into the service.

All the applications have been returned to me. I am enclosing printed matter which will give you a good idea of the qualifications required for permanent employment. The temporary employment qualifications are nominal. Examinations are held for promotion for the position of senior mechanic £192 to £208 ($934 to $1,013) per annum; foremen, up to £300 ($1,461) per annum; and assistant engineer, telephone construction, professional, at an advance on these salaries.

There are also business colleges which engage instructors mostly department men (mechanics) to lecture. They also secure the loan of the telephone and other apparatus required.

I will be glad if you could find space in TELEPHONY for a few extracts which may be read by the writers of the letters sent to me. As much as I would like to, I cannot possibly answer them individually.

Melbourne, Australia. J. B. Doody.

[EDITOR'S NOTE: The lack of postage on letters which Mr. Doody mentions is a matter about which much has been said in various American periodicals and has often been the cause of American business houses losing foreign business due to failure to properly prepay mailing matter, only domestic postage being placed on the letters and packages. The examination for mechanic includes practical tests to determine the applicant's familiarity with the use of tools, and his ability in installing and repair work; an oral examination in which questions are asked relative to the work covered by the practical tests; a written examination consisting of questions calculated to test the applicants knowledge of the elementary principles underlying the ordinary work of a mechanic; and an educational examination in handwriting, spelling and arithmetic. This portion of the examination is merely qualifying. Should further information be desired regarding the qualifications referred to by Mr. Doody they may be obtained by writing to TELEPHONY.]

Consolidated Directories Solve Advertising Problem.

How to make the telephone directory valuable as an advertising medium is a problem that H. H. Bertrand, of Williamsport, Ind., has solved with good prospect of success. He decided if combinations were good in other lines, it would be good to have a combination directory of the nine telephone companies in Warren county.

"Here, Smith, I'd like to put your ad in this directory. You could run in a few suggestions as to what you have and get a good many telephone orders from people within delivery range." This has been the method of approach used in getting advertising for each of the nine directories.

"I am already in four directories, and I have decided that I am paying too much for that kind of advertising," was often the merchant's attitude, in response.

Mr. Bertrand, in getting out one big book for all the county, has given the merchant a chance to concentrate his advertising and increase the circulation. There is no question of the continued pulling power of such advertising, either, as the rural telephone companies do not change directories more than once a year.

In addition to the better advertising value, the printing bills are very much less, so that the project is one that is proving more satisfactory all around. The merchant feels he is getting better value, the companies make money on the directories, and the subscribers have a better book.

Missouri Commission Begins St. Louis Rate Hearings

Testimony Submitted by Southwestern Telegraph & Telephone Co. in Support of Its Application for Increased Telephone Rates in St. Louis and Vicinity—Inventories Show Direct Cost, Present Value and Replacement Value—A. T. & T. Official Upholds 4½ Per Cent. Payment

The Missouri Public Service Commission began hearings last week at St. Louis on the application of the Southwestern (Bell) Telegraph & Telephone Co., to increase its rates. Edwin F. Carter, commercial engineer of the company was on the stand more than half a day, much of his testimony being a comparison of rates between the Kinloch and Bell companies. He said that if the Kinloch rates were applied to the Bell service the revenues of the latter company would be increased by $220,565 a year. The Kinloch company, he declared, had fewer classifications. The witness testified that in the St. Louis district there were, on December 31, 1913, 68,239 stations, with a revenue of $2,141,556. The proposed new rates would give the company a net increase of $160,233, he said.

M. B. Downing of the general traffic department testified that a recent wage advance and shortening of hours granted to the operators had been estimated to cost $108,000, but that already it is costing the company $10,000 a month. In addition, the company is shortening the apprenticeship period.

Southwestern Presents Inventories.

The Southwestern Telegraph & Telephone Co., submitted to the commission three inventories of its property. One applied to St. Louis, one to St. Louis and Clayton and one to East St. Louis and the Tri-cities exchange properties. In these inventories the present or depreciated values are figured on the replacement basis and not on the direct cost, making present values greater than the actual cost values.

The inventories for the St. Louis exchange property alone were: Direct cost, $8,514,218; depreciated or present value, $8,608,833; replacement value, $10,012,599. This shows the depreciated value to be $94.615 greater than the direct cost.

The inventories for the St. Louis and Clayton exchanges were: Direct cost, $8,592,735; depreciated value, $8,658,839; replacement value, $10,104,229. The depreciated value was $66,104 greater than the direct cost.

The inventories for the St. Louis, East St. Louis, Clayton and Tri-cities exchanges were: Direct cost, $9,251,723; depreciated value, $9,446,159; replacement value, $11,077,878. The depreciated value was thus $94,436 greater than the direct cost.

The direct cost of the St. Louis exchange, itemized, was given as follows: Land, $592,299; buildings, $640,802; central office equipment, $1,472,889; substation apparatus, $356,956; installation, $228,479; private branch exchange boards, $283,319; booths, $8,988; pole lines, $746,884; aerial cables, $892,190; aerial wires, $276,473; drop wires, $184,363; underground conduit (main), $1,210,526; underground conduit (subs), $222,024; underground cable (main), $1,177,693; underground cable (subs), $190,609; right of way, $29,722; total direct cost of plant, $8,514,218.

The company, however, claims a right to earn dividends on a much greater amount of capital invested, including the expense of organization, expense of getting business, working capital and miscellaneous property values, together with large amounts for interest, taxes and engineering during construction. The total of these, added to the direct plant cost, would bring the total on which the right to earn is asked, up to $11,961,569.

The commission will consider arguments on the right of the company to earn during the period of organization and development, and its right to an earning on what it says was its cost of getting its subscribers and on other bookkeeping estimates.

The company's inventory and statement said that it is entitled to an earning of 8 per cent. which it would have had if its property had been fully earning at all times. This amount is fixed at $1,825,746.

From this it deducts a net operating surplus during the period of $441,893, interest during construction amounting to $436,027, both of which are included in the appraisal, and adds organization and development expense of $294,500, cost of securing 63,200 subscribers' contracts, $252,800; working capital, $315,547; miscellaneous property, $249,902; commissions and contingencies, $239,061; insurance during construction (1.5 per cent. on 80 per cent. valuation), $18,141; taxes (2.2 per cent. on 60 per cent. valuation), $85,308; engineering during construction, $437,664; general, $172,790; interest during construction, $433,312.

The accuracy of the figures of the cost and of the expenses during construction, as well as the cost of securing business, will be thoroughly investigated by the commission's engineers, members of the commission announced. The commission will then determine what expenses will be allowed for rate making purposes.

The statistics given are not on the basis of replacement value on which the company contends it has a right to fix rates, and if the company should be permitted to fix rates on a replacement value basis, the amount would be very much greater.

The commission has not determined whether it will consider only the St. Louis property and earnings in fixing the rate, or will include the Clayton and East Side exchanges. The several exchanges are closely allied, and in many instances service given to St. Louis subscribers extends to East St. Louis, and East Side service to St. Louis without extra charge. This would make the division of revenues difficult.

One of the witnesses at the hearings was F. A. Pickernell, special agent of the publicity and long distance lines departments of the American Telephone & Telegraph Co. Mr. Pickernell was questioned closely by the commission in regard to the 4½ per cent. of gross earnings paid by the Southwestern to the parent organization. He testified that this was not exorbitant, and pointed to the fact that the net revenue of the American Telephone & Telegraph Co. last year was less than 6 per cent. The witness thought that "this was not robbing anybody, and certainly the A. T. & T. Co. hasn't taken big profits out of St. Louis."

Public Gets Benefit from A. T. & T. Profits.

Mr. Pickernell said that the American company did not use its profits for extra dividends to its stockholders, but invested these profits in additions to the plants of its associated companies. In this way, he explained the public gets the benefit of the American company profits from the local companies, in that the public was furnished with the additional telephone facilities.

He ventured the opinion that after the Missouri Public Service Commission shall have finished its investigation, it will find that those who have complained of their tele-

phone service to the commission are getting the service at less than one-half of the average cost to the total subscribers. He said that he believed the application of the measured service to business telephones in St. Louis would prove "an interesting experiment" and become popular.

While on the stand, Mr. Pickernell paid a compliment to the Kinloch Telephone Co., of St. Louis, declaring that it was considered to be one of the most thoroughly organized and efficient Independent telephone systems in the United States.

What the Service Department Is Doing for Its Members

Important Benefits Declared to be Available Through the Service Department of the Independent Telephone Association of America—Typical Summary of the Service Rendered Members—Promptness and Diligence of the Department and Satisfaction Given

By F. L. Eldridge

The Service Department of the Independent Telephone Association of America is rapidly proving of value to the member companies that have taken advantage of the benefits that are available.

During the past two months several operating conferences have been held in the various states. The large attendance of operators at each meeting and the interest manifested demonstrates beyond doubt that practically all companies are becoming more progressive and are endeavoring to improve both the local and long distance service. Not the operators only attend these schools of instruction, but the managers as well, spend the greater part of the day at a conference, and after learning of the great possibilities for bettering the service and increasing the toll business, they invariably become strong supporters of standard methods and of the Service Department.

The operating schools, which are held under the direction of W. S. Vivian, secretary of the association, are only a small part of the benefits which are offered the members, for the Service Department is in a position to furnish advice in connection with any problem that may confront a telephone company. For instance, engineering, traffic, commercial, legal and other questions are being promptly answered and any number of them have been referred to the department for solution. As of interest to companies who may now be in need of assistance, a few specific cases are cited where advice and assistance were rendered that ordinarily would have involved the expenditure of considerably more than the dues which are paid into the association for membership.

Specific Instances of Service Rendered.

Floor plans were furnished a Wisconsin company for a new exchange. Information in regard to the proper commission that should be paid on originating toll business and other advice was furnished an Oklahoma company. One of the members in Oklahoma who wished to rehabilitate its entire plant, including cable work, was furnished complete information covering this work and a letter has been received showing great appreciation for the assistance rendered. The fullest possible information was also secured for an Illinois member company, the officials of which expected a high tension line to be constructed that would parallel the company's toll lines. The officials of this company were seeking advice in regard to what recourse they had in the matter and were promptly and fully advised. An Indiana company recently was furnished information in regard to the proper installation for an underground system. The same company was also put in touch with competent accountants to take care of certain accounting which was necessary. One of the Eastern members was recently seeking advice in regard to methods for increasing its toll business. The company consulted the Service Department and was furnished information that has increased its toll business to a great extent. This company is so highly pleased with the results obtained through the association that it has requested the Service Department to refer to it any company which is interested in this subject, for reference in regard to the benefit the Service Department has been.

A commercial company in Illinois recently called for advice in regard to presenting certain facts to the Public Utilities Commission. Decisions of the various commissions in other states were secured for this member in order to assist it in presenting its matter before the Illinois commission. This particular company had made considerable effort to secure the information from other sources before calling upon the association, and the latter has been complimented on the assistance that was rendered in this case. One of the members in the state of Washington was advised fully in regard to the proper protection against lightning. Another Washington member wrote for advice in regard to the proper methods of accounting and was fully advised. Contracts covering both local and long distance service have been forwarded to many of the member companies, which were looking for this class of information, and other companies, too numerous to mention, have been rendered assistance in a great many other ways.

Co-operation and Standardization.

Therefore, it has been conclusively shown that the Service branch of the association is going to be a big factor in assisting the Independent operators in improving their service, as well as in benefiting them otherwise. From the expressions of both operating companies and manufacturers it is hoped the work will be permanently carried on regardless of any new physical connections which are made or any other changes which may take place at any time. Every Independent operating company would be benefited by affiiliation with the Independent Telephone Association of America, the dues of which are only $5 per year. It is desirable that every member company get its neighboring companies interested and in this way create a spirit of co-operation, and be in a position, through the Service Department, to standardize from an operating point of view, in addition to carrying the best insurance possible.

The standard long distance operating instructions are being adopted by companies in many states and are being furnished to members at 25 cents per copy and to non-members at 50 cents. These instructions will put a company on the right track in regard to the proper methods for handling its long distance business.

Every member of the association is urged to write the Service Department whenever information or advice of any character is desired.

Joint Meeting of Pennsylvania Associations.

The 22nd quarterly meeting of the Western Pennsylvania Independent Telephone Association and the fifth quarterly meeting of the Eastern Pennsylvania Independent Telephone Association will be held jointly at the Merchants Hotel, Johnstown, Pa., on May 7 and 8, 1914.

Queries on Theory and Practice

Power Lines and Metallic Rural Lines.

We have two rural lines, metallic circuit, using instruments with 2,500-ohm ringer movements, connected from one side of ground without condenser and with divided ringing, half of the ringers being connected on one side of the line and half on the other side.

One of these lines has four instruments and the other has six instruments connected to it. There is a 6,600-volt, 60-cycle, single phase power line now operating on the same side of the road, running over our lines for a distance of 3½ miles with a clearance of from four to 10 feet, and the induction renders the telephone line useless. Can these two telephone lines be transposed so as to make them serviceable, or will it be necessary to move them to the other side of the road?

By all means move across the road, for safety to your subscribers and quiet to your line. It has been noted that the high voltage alternating current power lines which are spreading across the country are driving out the party lines which ring to earth. It is next to impossible to bridge bells to earth and have a quiet or even a usable line, if the power lines are on the same road. Change to open code ringing (all bells bridged metallic) or to harmonic ringing to get your selective signaling. Two frequencies will give you what you are now getting and will not require any earth connections.

Unnecessary to Insulate Common Return Wire.

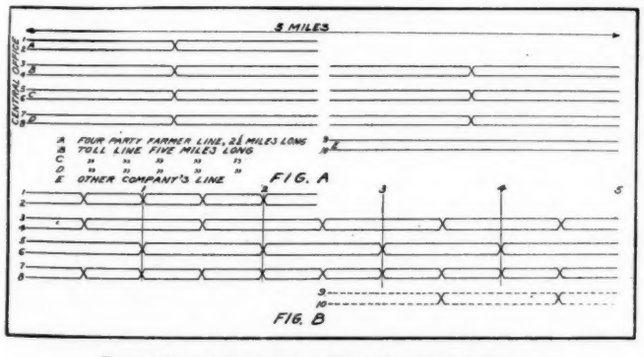
Is it necessary to use insulated wire for the return wire of a common return system where there is a 2,300-volt plant located in the same town, having some of its leads on the same streets?

No, insulation will not help the return wire. It will not reduce induction nor will it help materially in case of actual contact. Contact must be prevented by careful arrangement and other safeguards.

Transpositions of Toll and Rural Lines.

We have a lead of four metallic lines, three of them being five miles long and the fourth, a four-party farmer line, two and one-half miles long. The farmer line is on pins 1 and 2, the toll lines (the other three pairs) on pins 3 and 4, 5 and 6, 7 and 8 (Fig. *A*), respectively. We leased pins 9 and 10 to another company which has run a line on them from the opposite direction to which ours run.

All of our lines are transposed right over left every half


5 MILES
CENTRAL OFFICE
A FOUR PARTY FARMER LINE, 2½ MILES LONG
B TOLL LINE FIVE MILES LONG
C " " " "
D " " " "
E OTHER COMPANY'S LINE
FIG. A
FIG. B

Present and Suggested Transposition Scheme.

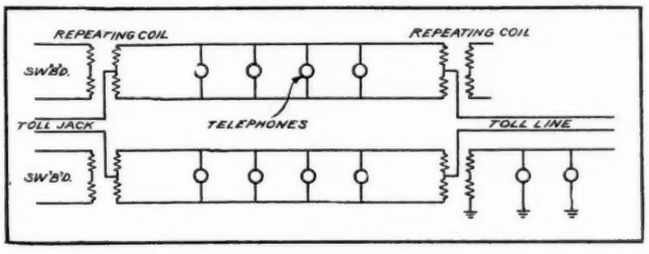
mile, the transpositions of each half mile being on one pole. The other company's line is not transposed.

We want to change the plan of transposition to get rid of cross talk, which at times is quite noticeable. Will you suggest a suitable plan of transposition for this?

Omit some of your transpositions according to Fig. *B*. You have more transpositions than really needed, unless you are very close to strong current. Hence you can cut some of the transpositions straight, which will kill your cross talk. Let the leased wires, 9 and 10, be as they are (untransposed), unless the other company wants to transpose. If they do, have them follow the cuts indicated in Fig. *B*.

Transpositions of Grounded Lines No Advantage.

We have three grounded circuits between two exchanges on the same cross arms, which are parallel for a distance of 17 miles. Two of the lines are farm lines, having about 10 telephones on each line and the third is used for a toll line. The cross talk is so bad that it is a nuisance. Would a three-way transposition, every half mile do away with this trouble? And



Scheme for Phantom Toll Line.

would it help any to put in separate grounds at the exchanges for these lines?

No, transpositions will not help you. They would only tend to equalize the cross talk so as to make all about equal in that respect.

You can obtain relief by stringing one more wires and making the toll line a phantom on the two farm lines. If one farm line is longer than the other, let the extension run grounded beyond the repeating coil. Both repeating coils must be side by side at the same place.

Separate grounds will do little good.

Trouble With Ringers.

We are having a peculiar telephone trouble, for which I am going to ask you to tell me a remedy if you can. Our system is a common return and we have a Monarch switchboard with a Warner pole changer. We are using several different makes of telephones. Our farm lines have 1,600-ohm ringers and our town telephones have 80 ohms. Our trouble is that the ringer magneto seems to get stronger on one side than on the other, making the armature stick to one side. Can you tell me the cause and a remedy?

If most or all of the bells show this trouble, it may be due to faulty adjustment of the pole changer. Perhaps the vibrator makes contact better, and for a longer time, on one side than on the other, resulting in a strong pulsation of current one way and a feeble one in the opposite direction. Try a hand generator to ring out from the switchboard to see if it rings them all right.

A ringer, one of whose coils is partly short-circuited, will act in the same way. If the change to hand generator and adjustment of the pole changer do not cure it, have the coils on a few defective ringers rewound and it may cure it. In any case write us again.

Telephone Does Not Attract Lightning.

H. R. Ball, of the Northwestern Indiana Telephone Co., of Valparaiso, Ind., recently took occasion to hit the time honored idea that a telephone attracts lightning to a home, by forcing a Valparaiso paper to admit it had made a false statement in regard to a house that was struck near there. After admitting its mistake the paper quotes Mr. Ball:

"There has been no telephone in that house for months, as the family had it taken out while they spent the winter in Texas. Many people have the idea that a telephone in a home attracts lightning, which is absolutely false."

Proceedings Before Commissions, Courts and Councils

Discussions and Rulings of State Bodies Having Supervision of Telephone Companies, Decisions of Courts in Matters Affecting Public Relations of Utilities and Actions of City Councils Bearing Upon Franchises, Rates and Service

Answer of Bill in Pittsburgh Injunction Suit.

The answer of the Central District Telephone Co. to the bill in equity filed by the Chamber of Commerce of Pittsburgh, Pa., and others, on which Judge Robert S. Frazer granted an injunction restraining the company from discontinuing unlimited service contracts until the matter of rates can be taken up before the Pennsylvania Public Service Commission, was recently filed in Common Pleas Court at Pittsburgh.

The complainants claimed that the discontinuance of the unlimited service would greatly increase their rates. The answer declares that the flat rate of $125 a year for business telephones was discontinued April 1, 1911, and that since that time no business at this rate has been written. They state that notice that contracts would be terminated on October 31, 1913, was given to subscribers having such contracts, and that such service at that rate since that day has been continued because the injunction was issued. It is admitted that all new subscribers will be required to sign new contracts for measured service and that there are about 2,100 subscribers enjoying the old rate service.

The answer denies that the new rates are an increase in the price of telephone service over rates previously charged and declares that they are a substantial reduction. It is admitted that the company, subject to the order of the court, will discontinue all the old flat contracts and require customers to sign a new contract under the new rates, which rates are given in a schedule attached to the answer as an exhibit.

The defendant declares that in the development of the telephone business apportionment of charges was experimental. It is claimed that with the growth and understanding of the conditions of such business it has been the consensus of opinion among telephone companies, experts, public service commissions dealing with such questions and others that the only scientific and equitable method of apportioning charges for services in cities like Pittsburgh is by the message system.

The flat rate, it is declared, has been found to be unscientific, inequitable, wasteful and the cause of annoyance to the public and the congestion of wires of the telephone company. Under a flat rate basis, the company says the smaller user of telephone service is discriminated against in favor of the larger user, and the only way to relieve discrimination and congestion is by charging each subscriber a fair amount based upon the actual use of the telephone.

It is declared that the change from flat rate to measured service has been almost universal in cities the size of Pittsburgh. It is claimed that the company never earned any excessive profits, but has at all times made only a fair return on the capital invested in the business.

The answer denies other averments of the bill of complaint and admits other statements and asks for a dismissal of the bill at the cost of the plaintiffs.

Plan Municipal Telephone Plant For Denver.

For the purpose of effecting an organization and outlining a campaign for a municipal telephone system in Denver, representatives of various bodies in the city recently held a meeting in Judge Ben B. Lindsey's court. The organizers, which include S. B. Strang, James W. Hall, William Pique and others, plan to have the organization run along lines similar to an organization in Denver known as the Water Consumers' League. According to Mr. Strang, who believes the rate schedule in the recent settlement in Denver provides rates in excess of what telephone users ought to pay, there will be no conferences between the new organization and the officials of the Mountain States Telephone & Telegraph Co. or the Denver Business Men's Association.

Proposed Automatic System for Memphis, Tenn.

Application for a franchise for the Memphis Automatic Telephone Co. was recently made to the city commission of Memphis, Tenn., by C. W. Thompson, J. B. Goodbar, T. R. Winfield, L. W. Johnson, George G. Alban and others. The company proposes to buy out the Memphis Telephone Co., reorganize under the name of the Memphis Automatic Telephone Co., with an authorized capitalization of $2,000,000, and to spend $500,000 in telephone extensions. The application asks a franchise for 30 years, at established rates to subscribers lower than the rates fixed by the city in its recent rate ordinance.

Ruling in Paducah, Ky., Case.

Judge Walter Evans of the district federal court of Kentucky has handed down a decision in the case of the City of Paducah vs. the East Tennessee Telephone Co., in which he holds that the company has the right to erect poles, string wires, etc., in Paducah, but that all work must be done under regulation by the city. He also holds that the city has the right to make rates.

Proposed Consolidation at Hastings, Neb.

In the face of an unsettled difficulty between the farmers of Webster County, Neb., Hastings business men, the Hastings city council, Hastings Independent Automatic Telephone Co. and the Lincoln Telephone & Telegraph Co., the Nebraska Railroad Commission has indicated that it will order a consolidation of the Lincoln and Automatic companies' service, with a new schedule of rates. The Lincoln company is asking consolidation of the two companies and an increase of $1 on business telephones "to absorb a decrease of $800 to $900 in revenue caused by the consolidation."

In support of this contention the Lincoln company president, Mr. Woods, presented to the commission, at a recent hearing, a resolution adopted at a meeting between citizens and the Lincoln company in which the consolidation and rate increase were agreed to, together with a stipulation for free service on county lines.

The farmers, represented by R. R. Vance, presented a resolution with 580 names asking that the consolidation be made but that the rate increase be refused and that free county service be maintained. It also is requested that the service to small surrounding towns be improved under the consolidation. A decrease in present rates, without figures, is suggested. This resolution was concurred in by a committee from the Hastings Chamber of Commerce. L. A. Kinney, heading the chamber's committee, disclaimed responsibility for the citizens' meeting which agreed to the rate increase. He said the people of Hastings as a whole want the rates reduced.

Councilman Livingston and City Attorney Hartigan opposed the consolidation of the companies and demanded that the city be allowed to buy the Automatic company and fight the Lincoln company.

These two men said they and the city council would not allow the Independent automatic company charter, with its option of purchase by the city at the end of ten years, to be

dissolved or absorbed (an agreement made at the time the company was organized); that the city can purchase the automatic company, reduce rates, improve service and show the city a profit.

Representatives of the Hanson, Doniphan, Glenwood and other small town exchanges in the county now having free service in and out of Hastings, were assured by all factions that they will continue to receive free service.

Want Public Owned System in York, Neb.

Defeated in their attempt before the Nebraska Railway Commission to get a reduction of telephone rates from the York county exchange of the Lincoln Telephone & Telegraph Co., citizens of York and York county now are seeking to have the county build a people's telephone plant. A petition is rapidly getting signers in the city and county, asking the board of supervisors to submit a proposition to the voters this fall for bonds for the building of the system.

Cleveland Company to Issue $4,000,000 of Notes.

Preliminary to extensive refinancing the Cleveland Telephone Co. has asked authority from the Ohio Public Utilities Commission to issue and sell $4,000,000 of two-year 5 per cent. notes. The notes are to be sold at a price that will yield not over 6 per cent. to the purchasers. The purpose is to permit the readjustment of its finances and the payment of all its debts.

The company states that it owes the American Telephone & Telegraph Co. $3,082,130; that the value of its plant, equipment and property is $8,132,158; and that it has $4,000,000 of issued stock. The application says there are extensive improvements required for this year and the order of the commission is sought without delay. The application is made by B. E. Sunny, president.

Cuyahoga Telephone Co. to Enjoin City of Cleveland.

The Cuyahoga Telephone Co. has filed suit in the common pleas court to enjoin the city of Cleveland from enforcing an ordinance providing that 14 miles a year of overhead wires must be placed underground.

The petition states the ordinance is illegal, is in conflict with the franchise granted the company, under the name of the Home Telephone Co., Feb. 3, 1896, and that it is confiscatory. The petition asks that on final hearing the ordinance may be declared void.

John J. Treacy for New Jersey Commission.

John J. Treacy, of Jersey City, has been nominated by the governor of New Jersey for the position on the board of New Jersey Public Utility Commissioners made vacant by the resignation of Winthrop More Daniels.

To Vote on Telephone Franchise at Webster, S. D.

The voters of Webster, S. D., are to say whether they will give David Williams a 20-year franchise for a telephone exchange. An application for this franchise has been before the council for several months with no apparent objection. The petition just filed for a submission to the voters will definitely settle the matter. It is estimated the exchange will cost $30,000.

Franchise Situation in Spokane, Wash.

The franchise of the Pacific Telephone & Telegraph Co. in Spokane, Wash., expires in June and there has been some agitation by those in favor of ultimate municipal ownership to induce the city council to refuse to grant a new franchise.

At a recent public meeting a committee of 15 was named to draft resolutions favoring abolition of the franchises of both the Pacific and Home companies and to inform the city council that the voters will initiate an ordinance for the construction of a municipal telephone and electric plant, if the commissioners do not act. Commissioner C. M. Fassett, however, thinks that ownership of the telephone and telegraph systems of the country by the federal government is the real solution of the telephone question, and that Spokane should make the best terms possible with the Pacific company and then await the taking over of the business by the general government. Commissioner Fleming stated that the city commissioners could not listen to the suggestion of cutting off the Pacific company, which has millions invested in the city, with a refusal to renew its franchise.

Privacy in Telephoning.

The Public Service Commission of New York has notified Stewart Smith, of 18 Broadway, New York City, the author of a petition requesting an investigation with the view of obtaining a device to secure the protection of telephone conversations from eavesdroppers, that it can do nothing in regard to the matter. Mr. Smith sent copies of his petition to about 1,000 business men unknown to him and states that although he undertook no accelerating campaign and had no newspaper notoriety about one-sixth of those to whom he wrote took the trouble to forward the petition to the commission.

To Enlarge Power of Kansas Commission.

An amendment to the Kansas public utility act to give the commission authority over utilities which supply but one community, and over municipally owned utilities, will be presented to the next legislature of Kansas.

Want Merger at Parsons, Kan.

The Chamber of Commerce of Parsons, Kan., has endorsed a resolution which provides for a consolidation of the Home and Bell telephone company lines and property in that city. It is proposed that the companies be consolidated, and that a new franchise be issued which will provide for the same maximum rates under which the Bell company now operates. This will give the same rate to the merchants, as heretofore, but the city commissioners object to any increase being made in rates for residence subscribers.

The residence rate under the new schedule would remain the same until the subscribers number 1,500. Under the new franchise the company would be empowered to fix a rate of $1.75 a month. The rate on business telephones is $2. It is contended that the consolidation would practically put all of Labette county on one exchange and that the farmers would be required to pay but ten cents to talk to any part of the county.

Only Legal Interest on Delinquent Taxes.

Interest on delinquent telephone taxes can only be charged at the regular legal rate, according to an opinion of Attorney General Walter C. Owen, of Wisconsin, rendered to State Treasurer Henry Johnson. The question was raised by the payment of the license fee of $14.31 by the Lime Ridge Telephone Co., of Lime Ridge. The fee was due March 1. Delay in the payment of railroad taxes results in a 15 per cent. penalty, but that portion of the statute is not found applicable to telephone companies.

Crawfordsville, Ind., Committees Seek Compromise.

Committees appointed by the city council and commercial association at Crawfordsville, Ind., to investigate the proposed raise in rates by the Central Union Telephone Co., went to Indianapolis recently to confer with officials of the Bell company. An effort is being made to compromise the trouble that has arisen before going before the Indiana Public Service Commission.

Issuance of Notes Without Commission Authority.

The Railroad Commission of California has ruled that the commission's consent is not necessary to the issuance of one-day promissory notes. This decision was reached in connection with the application of the Tulare Home Telephone & Telegraph Co., of Tulare, Cal., for authority to execute its one-day unsecured note or notes in the sum of $9,000 the money to be used for the purpose of making additions and betterments to its system.

In commenting upon this application the commission states that the public utilities act of California, while pointing out that no public utility may issue stocks and stock certificates, bonds, notes or other evidences of indebtedness, payable at periods of more than 12 months after the date thereof, without having first secured from the commission an order authorizing such issue, continues as follows:

A public utility may issue notes, for proper purposes and not in violation of any provision of this act or any other act, payable at periods of not more than twelve months after the date of issuance of the same, without the consent of the commission, but no such note shall, in whole or in part, be refunded by any issue of stock or stock certificates, or of bonds, notes of any term or character or any other evidence of indebtedness, without the consent of the commission.

In its general order No. 35, approved July 39, 1913, the commission made the following ruling with reference to demand notes:

"As a demand note is payable at any time when demand is made, which time may be more than 12 months after its execution, such note will be considered as being a note payable at a period of more than 12 months after the date of issuance of the same."

In commenting on this the commission adds:

The reasoning which prompted this commission to reach the foregoing conclusion with reference to a demand note does not apply to a one-day note. A one-day note is payable at the end of a specified time, which time is "not more than 12 months after the date of issuance of the same." Accordingly, a public utility may originally issue such note for proper purposes and not in violation of any provision of the public utilities act, without having first secured the consent of this commission. As it is evident that the purposes for which the proceeds of these notes are to be used in the present proceeding are proper, the commission's consent to the issue of the notes is not necessary.

Summary of State Commission Hearings and Rulings.

CALIFORNIA.

Decision No. 1387: Order granting the application of the Sunset Telephone & Telegraph Co. for permission to sell a telephone exchange in the city of Tulare to the Tulare Home Telephone & Telegraph Co., and of the latter company to purchase it.

Decision No. 1394: Order holding that the commission's consent is not necessary to the issuance of one day promissory notes and dismissing the application of the Tulare Home Telephone & Telegraph Co. therefor without prejudice.

April 13: Order declaring that the present service rates charged the patrons of the farmer telephone lines connected with the Modesto exchange of the Pacific Telephone & Telegraph Co., are unjust and discriminatory, and requiring the company to make a rate of $3 a year to each patron. The new rate becomes effective on May 13, 600 rural patrons being affected. The company has been charging from $3 to $7.20 a year per telephone.

April 14: Application by the Associated Chambers of Commerce of Orange County asking for an order directing the Pacific Telephone & Telegraph Co., the Union Home Telephone & Telegraph Co., of Los Angeles, the United States Long Distance Telephone & Telegraph Co., of Los Angeles, the Smeltzer Home Telephone & Telegraph Co., of Santa Ana, the Home Telephone Co., of Huntington Beach, and Joseph Yoch, to maintain physical connections between their several lines so that patrons of each company may have service over the others for long distance calls.

INDIANA.

May 4: Hearing at La Grange on the request of the Peoples Mutual Telephone Co., of that city, for toll connections with the Bell company.

MICHIGAN.

May: Hearing on application of Michigan State Telephone Co. for metered service in Detroit.

MISSOURI.

April 21, 22: Hearing held on proposed increase in rates of the Southwestern Telegraph & Telephone Co.

NEBRASKA.

April 22: Order granting the Chester Telephone Co., of Chester, Neb., permission to install a farm line service with eight parties on a line at a rate of $1.25 a month per instrument. The customary rate in the territory is $1.00 per instrument with more than eight parties on a line.

NEW JERSEY.

April 17: Hearing held on complaint of Farmers Union Telephone Co. that the Farmers Mutual Telephone Co., of Sussex County is doing business for profit though unincorporated, and is soliciting business in the territory of the former company.

NEW YORK.

April 29: Hearing on complaint of Dwight H. Murray against the New York Telephone Co. regarding the refusal of the company to furnish private branch exchange service.

OHIO.

April 22: Order authorizing the Cincinnati Suburban Bell Telephone Co. to issue its capital stock to the total par value of $637,150 to pay for improvements now under way.

April: Petition by Cleveland Telephone Co. to issue $4,000,000 of two-year 5 per cent. notes to be sold at a price to yield the investor not over 6 per cent., the money to be used for paying existing indebtedness to the extent of about $3,250,000, and $750,000 to be used for current improvements and extensions including the putting of additional wires in conduits.

OKLAHOMA.

April 20: Petition by City Attorney Tibbitts, of Guthrie, for a reduction of telephone rates in Guthrie. The complaint charges that the existing rates for residence telephones range from $1 to $1.75 per month and for business telephones $2.50 per month and that the telephone company seeks to further increase the rate to $2 and $3 per month respectively The Guthrie petitioners hope for a rate of about $1 per month for residence and $2 for business telephones.

Application by the city of Guthrie for an order compelling the Pioneer Telephone & Telegraph Co. to reduce present telephone rates there to a uniform schedule of $1 for residence and $2 for business telephones. The present rates for residence instruments range from $1 to $1.75 per month and business telephones are rented at $2. The Pioneer company is contemplating an increase of $2 and $3 respectively on the two classes. The commission will hear the complaint in Guthrie, a city of 12,000, whose Pioneer exchange has 1,200 telephones.

PENNSYLVANIA.

April 23: Further hearing held in the general telephone rate investigation.

April 29: Matter of contract between the Bell Telephone Co. of Pennsylvania and the borough of Myertown, Lebanon County.

TENNESSEE.

April 24: Complaint by 54 citizens of Flatcreek, Bedford County, Tenn., regarding the rates of the Flatcreek Telephone Co., charging that the company refuses to give adequate service at reasonable rates and that the company has no switchboard of sufficient capacity. The complaint declares that the company operates party lines only at rates equal to those charged for direct lines to the subscribers to the Cumberland Telephone & Telegraph Co., at Shelbyville, and that this alleged exorbitant rate enables the company to pay all expenses, extend its lines and still pay a dividend of 40 per cent. a month. The citizens ask for relief from these conditions. The petition was filed through the citizen's attorney.

WISCONSIN.

April 17: Order granting the Wild Rose Telephone Co., of Wild Rose, Waushara County, permission to issue $3,850 and $3,150 in stock for extensions.

April 17: Order granting the Pilsen Telephone Co., a rural line at Luxemburg, Kewaunee County, to issue $175 stock for improvements.

April 20: Denial of application of the Wisconsin Telephone Co. to build a line into the town of Rock in Rock county. The refusal was based on the anti-duplication law, the Rock County Telephone Co. protesting that it is already operating in the territory.

April 20: Order authorizing the Belmont & Pleasant View Telephone Co. to issue $400 in stock to provide for extensions.

A General Manager's Advice to His Exchange Managers

A Comprehensive and Practical Resume of the Elements Which go to Make up the Quality of Service Required of Local Telephone Managers—Paper Presented at a Meeting of the Managers of a Large Independent Telephone System—Second Installment

By P. Kerr Higgins
General Manager Texas Independent Telephone System

One of the bad habits of most managers is procrastination, "Thief of Time." Some managers have over their desk or on the wall, "Do It Now." I have seen it somewhere just a little different, viz., "Do It Right Now," and I would like to leave this suggestion with you and have you use it for what it is worth. It may save you lots of criticism and be the means of getting you just a little more money than you are now receiving.

Another poor trait on the part of many managers is inaccuracy. Instead of taking the pains to see that data, reports and work done is absolutely correct and can be relied upon, they skip over the matter and send in material which, as a rule, is sent back to them for correction. This is especially true along the line of making up vouchers. If vouchers are not made up according to the instructions given by the auditing department, then they are absolutely useless and it is a waste of time to have them. More time and money is wasted, due to inaccuracy than any other one thing. Many businesses have failed because of no other reason than inaccuracy. The ability of companies to properly finance their affairs is absolutely dependent upon the reliability and accuracy of their reports.

It will be a great help to you, in carrying out your duties as manager, if you will interrogate yourself frequently along such lines as, "Am I handling this account accurately and properly?" "Could any one criticise me for doing it in this way?" "Am I strictly honest toward the company, both as to time, labor and material?" The repetition of such interrogations are absolutely essential for the reason that once does but very little good. Repetition fixes habit and habit, if it is a good one, reduces the waste of effort and time and soon becomes automatic, regulating the life in a manner that ensures success.

Handle the company's business as though you owned the particular portion of the plant over which you preside; then, if a mistake is made, it will be a mistake on the part of the one who put you in charge of that plant. We wish you to look upon our business as you would your own business, and the best way to head yourself in that direction is to work for us while on a salary just as though our business belonged to you. Then you can say truthfully, that you always do things just the way you would do them if you owned the whole works.

Incur No Needless Expense.

It is a mighty good thing to constantly feel that the company has not behind it unlimited resources, and to ask yourself the question: "Would I go to this expense if I owned this exchange?" This is not always a matter of carelessness, but rather one of being too busy and having little time to carefully analyze each proposition put up to us, so that we get into the habit of asking for additional help and material in a mechanical way or in a way that we would not do if we had to take the money out of the cash drawer. If every manager will bear this thought in mind for the coming year, it will be surprising what a saving we will be able to show during that time. We earnestly and urgently request that you think this over carefully and bear it constantly in mind every day. You are in charge of and personally responsible for a certain portion of this company's business. It is not a question of how much you are worth, but how much you are worth to the company; in other words, any manager might think himself worth $100 per mouth and he may be absolutely truthful in his claim, while on the other hand he may not be worth $75 to the company because he is not able to apply his whole worth to the company's interest.

Avoid Waste.

Try to visualize the details of your business in terms of dollars and cents. Only in this way can you intelligently and efficiently appreciate what waste really means. By doing this when you come across a cross-arm, an insulator, a bolt, a lost toll call, a lost subscriber, etc., you will immediately associate the particular items as a loss in revenue. When you see an employe gossiping with another employe, you will immediately commence to figure how much loss this means to the company. If three people on duty talk together for 20 minutes, it means one hour lost for one person. It will be surprising to you, if you attempt this, just what you will be able to observe as you go about your duties from day to day. Reporting for duty is one thing, being on duty is another. If you are hired for a day's work, strive to give value received. In the work of supervising your exchange, you should find out if there is any activity or help which might just as well be cancelled. You can only do this by keeping in close touch with what is going on in your exchange. As a rule the manager knows most of the little things that are being carried on under his supervision, but he gets into a rut and is liable to overlook many of them.

Many complaints against employes are due to a misunderstanding on their part of the policy of the company and we frequently find that even managers do not fully understand the policy of the company. To state this policy briefly: It is the desire of this company to give a square deal to everybody and to render the public the very best service possible. As a rule, the demands of the public are those of the officers of the company, that is, if the patrons are not subject to any undue influence, such as politics, etc. Every effort must be made to avoid misunderstandings, and irritation. Therefore, we must adopt, as our policy, honesty in all our dealings. This is commercial wisdom. We must "make good" on every count and avoid any appearance of sharp practice; hence simplicity should be our watchword in all our dealings, using not telephone language but words and phrases which any patron can easily understand. The enforcement of our reasonable rules and regulations must be impartial and discrimination must be avoided and even officials must avoid the granting of favors or concessions to patrons that a manager cannot allow.

Lack of information is largely responsible for the suspicious attitude of the public, hence the commercial manager must be thoroughly posted on his business. Reason, but never argue with a patron. If he is obdurate to reason, do not press your point, but wait a more opportune time; it will surely come. If our policy and methods do not seem right and just to you, advise with us, but do not parade this fact before your fellow employes or the public. If in doubt as to how to act, and you have time, consult with your superior, if not, use your very best judgment and report the

facts immediately. A blind application of any policy regardless of consequences is illogical and absurd.

Practice of the Golden Rule.

The relationship between the public and the company, through its representative, must be of a most cordial character; hence one of the first duties of a manager should be to gain the confidence of his patrons and to do this he must be frank, honest and impartial in his dealings, adhering closely to the "Golden Rule," "Do unto others as you would that they should do unto you," remembering that promises must always be faithfully carried out.

The tide of public opinion toward the company will rarely, if ever, be turned in favor of the company by the officials of the company; but we must rather look to the rank and file, and especially our managers and operators. It should be the ambition of every manager to have his newspapers and his patrons point to the telephone system in his community with pride, claiming and asserting that it is the best in the world.

It is extremely important that our relations with the public be of the very best. The way to reach the public consists of two paths: First, good service; second, cultivating the friendship of the press. Cordial relations imply absolute mutuality between company and subscriber, the company making the first and last moves. Appreciation by the public is not an incident of our business; it is the vital feature of success; don't forget that. It is our foundation and the only one that will hold when the wind blows and the rain descends. A pleased patron is an asset which cannot be stated in dollars and cents and a dissatisfied subscriber is a debt which is very difficult to liquidate. Not only must we build on public appreciation and confidence, but we must maintain the business along these same lines.

Analyzing this, we find that on both sides persons are involved; and hence it is one of the duties, if not the prime duty, of the commercial manager, to educate and insist upon courteous treatment, not only by his own department, but by each and every employe in all departments; and any employe discourteous to a subscriber should be discharged upon the second offense, he or she having been previously warned, and this regardless of his or her efficiency along any other line.

Don't forget that the real "boss," after all, is the public, and we the servants; hence we should try to please them and this is best done by dependable telephone service. Every effort should be made by managers to cause employes to feel that they are on the pay roll of the public and if they desire to remain on the pay roll, they must be efficient.

Deal with the public as individuals and not as a whole, and never tolerate or encourage even the thought that it is impossible to please the public. This expression on the part of our employes must be forever banished. We do not wish subscribers to talk to departments; we wish to encourage the personal equation so that the public know you as Mr. Smith and so on. It is easier to transact business on such terms.

Insofar as possible and practical, the company should be known as a local institution and the connection system as a whole, a state institution. The manager is expected, and will be encouraged in taking an active interest in the fraternal and social life of his community as only in this way can he get in close personal contact with his patrons and the people who can help him over the rough spots along the pathway of business success. Our patronage, insofar as possible, should be given to local interests, when equally advantageous terms can be obtained.

So far we have discussed chiefly the manager, and now just a few words regarding his subordinates. Frequently managers claim, and often justly, that they have striven very hard to make good but were held back by those working under them. Department heads can also be frequently heard making this same remark. This is a sign of weakness more especially where the company has given managers and heads of departments a free rein as to the choice of their subordinates. The excuse made that their employes are inefficient is a confession of either inability to teach or inability to select on the part of the official in charge.

It is sometimes difficult, if not impossible, to personally supervise all the details of an exchange or department, but you can at least supervise a sufficient percentage of the work being done to enable you to determine whether or not the work as a whole is being done properly, and in no case should this supervision be less than 25 per cent. of the whole. This is all the more reason for being very careful in the selection of employes and not, as many managers have done, employ persons without proper investigation and set them to work by handing them a pencil or a screw driver and saying "Go to it."

Negligence in carefully selecting and properly training new employes is usually fatal and always means wasted time at some later period if not immediately; hence it is necessary, before employing any one, that their qualifications should be carefully considered and especially is this true where the new employe is supposed to come in contact with the public, such as operators, troublemen, collectors, etc.

Some basic qualifications are: An even temperament, courteous and considerate treatment toward every one. All new employes should be carefully instructed in the rules and regulations and should have explained to them the reason for our rules and regulations so that they may be in a position to handle the public intelligently when the necessity arises.

Educational Requirements.

As a rule a person who has had a good high school training will eventually, if not immediately, make a better employe than an untrained person, other things being equal. College training is a good thing, but there is such a thing as too much college. It largely depends upon the individual. Usually a college education will make a good man better, and a bad man worse. The right man will not, usually, be stopped by the lack of a college education, while the other fellow will not accomplish anything very great or useful anyhow, with or without. It is usually risky to hire a man at a less salary than he has previously received, his willingness to do so may be due to temporary embarrassment and he will be with you only a short time, or it may be due to failing ability, in both cases his employment is questionable. Avoid the "floater" as you would a snake.

A good standard for new material is between the ages of 20 and 25, the applicant having a good grammar school education or preferably a high school education. A little while spent on the farm or in a small store helps. Usually such a man is receptive, his education is sufficient, his health is good and above all he has less to unlearn than in the case of the oldtimer.

In the treatment of your subordinates, you should constantly strive to gain the esteem of those working under you. If you do this you will not have to worry much about the opinion of those over you. To this end try to be truthful to your employes and do not promise or threaten anything without making good; use reason and logic in dealing with them rather than bluster, and since the policy of the company is to give everyone a square deal, you should do likewise. Take your subordinates into your confidence and talk with them as though they were really jointly interested with you in making your department or exchange successful. Do not assume familiarity with any subject unless you are thoroughly familiar with it, for by doing so you are liable to lose their confidence at the very start. Be frank, ask for information and let your subordinate know that you appreciate his ability to help you along that particular line. Usually the employe is pleased to know and show you that he can advise you on some things. In other words, be sincere in all your dealings

with your subordinates. Cultivate the happy faculty of being intimate enough with your subordinates to assure them of your good will, your sympathy when trouble comes and that you can realize both sides of the question and yet not be too familiar. Remember the old adage that "Familiarity breeds contempt."

Dignity and Courage of Conviction in Managers.

There are always times in the life of a department head or manager when a certain amount of dignity is absolutely essential to his success and he should always be in a position where he can assume that dignity when such is necessary. Your attitude towards your subordinates is really more important than your attitude towards your superiors; and the former will make the latter automatic in its operation. Never be a "flunky" to your superior officers and a terror to those working under you.

Endeavor always to have the courage of your convictions and be willing and ready to put them into practice. This is very essential in a successful manager. Do not be afraid to tell your superior officer in a courteous manner when you think he is wrong, and give your reasons for your belief. This does not mean to be too familiar, but calls for the use of tact and diplomacy, more especially in the words used and the manner shown towards the superior officer.

When it is necessary to reprimand a subordinate, never do so when in a fit of temper or when feeling "peeved," but rather wait until you can talk with him personally in an even tone of voice and in a manner that will bring conviction and good results. A man with a temper is a poor executive, not occasionally, but always, which reminds me of a story I once read of the tired mother who said to her daughter: "Mary, run and see what the baby is doing and tell her she mustn't."

Don't be backward in encouraging your subordinates when such is called for and when you do give such encouragement, do it pleasantly without restraint and with genuine pleasure in your look and word.

It is safe to assume that all managers are doing the best they know how. In the light of this assumption the company and its officials are placing themselves, their knowledge and experience at your disposal, so that there should be absolutely no good reason for lack of growth on the part of any manager. I am reminded of a story I once read about an Irishman who was digging a telephone posthole in a large city. The sun was shining brightly on his bald head, and the bishop coming along, looked at him and said, "Aren't you afraid the sun will affect your brain?"

"Brains, is it?" replied Pat, "and faith your Riv'rence, do yez think I be doing this if I had any brains?"

In other words, we must not expect men in subordinate positions always to have as good judgment and rare perception as we have, for if they had, they would not be holding the positions they now hold, hence subordinates deserve to have certain rights respected if they only do the best they know how. Do not speed up your employes too much, for this is liable to result in inaccuracy. Strive always to allow them plenty of notice and plenty of time to prepare themselves for any task before actually assigning the work to them. Preparation is a wonderful saver of time and temper. There is one thing, however, that we must expect and demand. It is that each and every employe must do a reasonable day's work in a reasonable length of time and he must do it accurately. Remember the old adage: "What is worth doing is worth doing well."

Employes Should Be Retained.

Every effort possible must be made to retain the services of each and every employe. There is a selfish reason for this, viz., that it costs on an average of $30 every time we have to break in a new employe; hence discharging employes is one of the most important items any company has to contend with and this company is particularly anxious to avoid dismissals in every case where possible. In some cases the expense of breaking in a new employe will reach $100 and this does not include the losses due to mistakes made or lack of knowledge of local conditions while being trained, but simply includes the salary of the employe and the pro rata of the salary of the supervising officer.

Most employes know enough but fail to apply their knowledge. I wish, therefore, to emphasize in the strongest possible manner the necessity of proper selection of employes all down the line and this should not end there; we should see that the training of each and every employe is complete or as nearly so as is possible and practical. To this end we must and will regard each employe as a valuable asset entrusted to our care, which will be valuable or useless according to the ability we display in training them. The expression, "We might as well fire him, he is no earthly good," is altogether too common. And when this remark is made, we are prone to wonder just how thoroughly the manager himself has been in his efforts to make this employe thoroughly efficient.

The trouble is that we are too anxious to employ ready made material, which is one of the greatest mistakes ever made by employers. If we will exercise patience in developing and moulding the material we have, according to our own ideas and expectations, we will be more likely to find them coming up to our standard. In fact, that is really what we have managers for, namely, to develop and train employes, which is part of their fundamental duties, viz., looking after the company's interest. We don't hire managers to stand around with a big stick and allow employes to follow after their own devices, and then hit them when they make a mistake. Give this matter serious consideration and the next time you feel disposed to dismiss an employe, instead of commenting upon his inability and weakness, first ask yourself: "Did I do what I should and could to make him a success instead of a failure?"

Reasoning is a good thing, but it is infinitely better to assign some competent person to show the employe how to accomplish better results, employes agreeing, of course, to follow absolutely his directions.

Justice to Employes.

If after a fair trial in some department an employe is found absolutely inefficient, not because of lack of experience, but because of some personal habit, lack of ability, laziness or any other defect thoroughly proven that would make him impossible in any part of our system, he should not be passed over to some other department or place, simply because the manager or head of department hasn't the nerve to discuss the proposition with the individual and discharge him outright; or, if he has the nerve, fails to use it, since it is so much easier to pass him on to someone else or drop him a nice little note stating that his services are not needed—denying the person any explanation as to why he was discharged—all of which is very unjust and unfair. In order to emphasize the above, let us repeat: Do not discharge an employe without first having satisfied yourself that you have done your full duty by him and when you find material that is hopeless, remember the company will have to pay the freight if you pass him on.

Insubordination on the part of employes should never be tolerated under any circumstance and when it does occur there is only one thing to do and that is to stamp it out. However, I am satisfied that if we have the right kind of managers, they will never have any occasion to deal with such a subject, for the reason that every manager inspires exactly the amount of loyalty he deserves. In treating all irregularities, we should first of all be absolutely sure we are right, second, be firm, and third, be quick.

(To be concluded.)

TESTS OF ROCKY MOUNTAIN POLES.

(*Continued from page 26.*)

1. There is practically no difference in strength between air-seasoned lodgepole pine and western red cedar. In stiffness the lodgepole pine poles exceeded the cedar by about 25 per cent.

2. The fire-killed poles, both lodgepole pine and Engelmann spruce, were practically equal to the cedar in strength at elastic limit and about 20 per cent. below it at the maximum load.

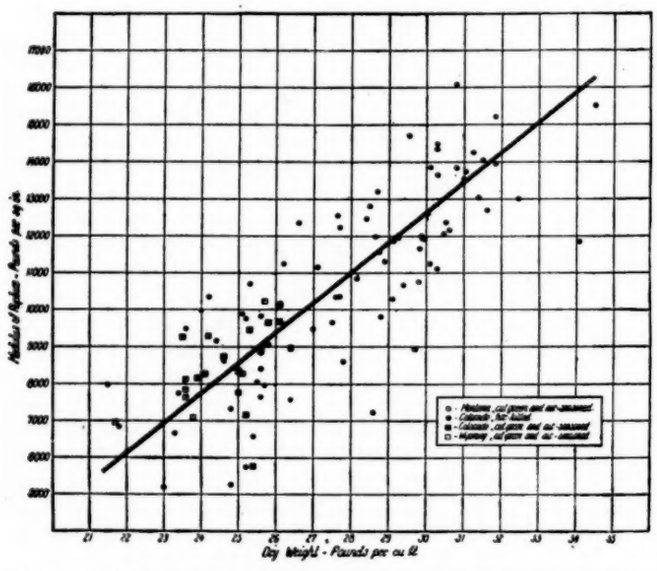


Fig. 7. Weight—Strength Relations for Clear Dry Lodgepole Pine.

Table No. 4 gives the average strength values of minor tests summarized by species and condition of seasoning. An examination of the average results shows in general very comparable values for the fire-killed pine and spruce and for the cedar. The cedar, however, falls about 16 per cent. below the pine in shearing strength and the spruce about 12 per cent. below it in crushing strength. The lodgepole pine from Montana showed a bending strength nearly 40 per cent. greater and a crushing strength 18 per cent. greater than the fire-killed lodgepole pine. It might seem at first sight that these differences were due to deterioration on the part of the fire-killed material, but an analysis of values in regard to weight and a comparison with values obtained from other tests on lodgepole pine indicate that deterioration is not the probable cause of the difference. It has been proved conclusively that in any species the strength of the clear wood varies directly with its dry weight.

In Fig. 7 the weight-strength relations are plotted for bending tests on small specimens cut from the tested lodgepole pine poles and for similar specimens taken from other material grown in Colorado and Wyoming, cut green and air seasoned. It will be seen that fire-killed lodgepole pine is equal in strength to the Colorado and Wyoming material cut green and air seasoned, and that the Montana material gave higher strength values because it was exceptionally heavy and much above the normal for Colorado-grown timber of which the fire-killed poles were representative. The soundness of the sticks cut from the fire-killed material also indicates that such timber has no inherent defect due to having been killed by fire. It seems more reasonable to regard it simply as seasoned wood, and to assume that deterioration due to age or exposure, if present, would be indicated by the same signs of decay that are apparent in any unsound material.

The relation between the stresses shown by the individual poles and those shown by the minor tests on the material cut from them is presented in Fig. 8. It should be remembered that the moisture content of the small specimens was only 8 per cent., as compared with an average of about 16 per cent. for the poles. The green-cut lodgepole pine shipment averaged about 22 per cent. moisture, though the outer shell of the poles was somewhat drier (see Fig. 3). This would tend to make the difference between the strength of the poles and the actual strength of the material in it much greater than was the case. A curve given on page 10 of Forest Service Circular 108, "The Strength of Wood as Influenced by Moisture," shows that, for eastern spruce, strength in bending will be reduced by about 30 per cent. when the moisture content is increased from 8 per cent. to 16 per cent. Tests on lodgepole pine from Wyoming indicate a reduction, under similar circumstances, of about 25 per cent. The curves shown in Fig. 8 have, however, been plotted with the values as obtained from the tests. Curve *A* shows the modulus of rupture for poles; curve *B*, the fiber stress at elastic limit; and curve *C*, the modulus of rupture for small clear beams cut from tested poles.

The curves, arranged in order of the modulus of rupture of the poles from highest to lowest, show the relation between the modulus of rupture of the small, clear sticks and the fiber stress of the poles at the elastic limit and maximum load. The position and number of checks, knots, and other defects, rather than the quality of the clear wood, determines the grade of a pole. While the curve for the modulus of rupture of the

Species and condition of pole from which cut.	Bending.								Compression parallel to grain.				Compression perpendicular to grain.		Shearing.	
	Number of tests.	Per cent moisture.	Rings per inch.	Weight per cubic foot (oven dry).	Fiber stress at elastic limit.	Modulus of rupture.	Modulus of elasticity.	Modulus of elastic resilience.	Number of tests.	Crushing strength at elastic limit.	Modulus of elasticity.	Maximum crushing strength.	Number of tests.	Crushing strength at elastic limit.	Number of tests.	Shearing strength.
				Pounds.	*Pounds per square inch.*	*Pounds per square inch.*	*1,000 pounds per square inch.*	*Inch pounds per cubic inch.*		*Pounds per square inch.*	*1,000 pounds per square inch.*	*Pounds per square inch.*		*Pounds per square inch.*		*Pounds per square inch.*
Western red cedar:																
Cut green and air seasoned—																
Average	105	7.9	16.9	22.3	5,997	9,305	1,185	1.73	56	4,825	1,373	6,540	61	538	78	959
Maximum		9.2	29.0	25.0	7,910	12,090	1,666	2.52		7,580	1,880	7,880		1,000		1,505
Minimum		7.0	6.0	18.2	3,120	5,280	615	0.53		1,990	640	4,350		300		525
Lodgepole pine:																
Cut green and air seasoned—																
Average	40	8.1	31.9	30.2	8,600	12,775	1,520	2.78	53			7,672			35	1,129
Maximum		10.1	49.0	34.5	10,660	16,080	1,985	5.14				9,780				1,735
Minimum		7.3	12.0	26.4	5,460	7,580	1,056	1.18				4,595				800
Fire killed 10 years—																
Average	41	7.8	26.1	25.9	6,145	9,049	1,217	1.75	37	5,278	1,361	6,486	42	740	28	1,148
Maximum		8.6	56.0	30.3	8,310	12,350	1,622	2.68		7,200	2,010	8,770		1,210		1,500
Minimum		6.6	13.0	21.5	3,280	5,190	822	0.73		3,000	890	4,560		402		660
Engelmann spruce:																
Fire killed 10 years—																
Average	54	8.0	35.1	23.3	6,163	9,045	1,194	1.80	35	4,585	1,208	5,696	54	621	40	1,142
Maximum		8.8	66.0	28.3	9,100	12,360	1,620	3.00		6,750	1,700	7,000		995		1,595
Minimum		7.1	19.0	19.8	4,260	6,050	850	0.87		2,030	840	4,650		377		555

Table No. 4. Results of Tests on Small Clear Specimens Cut from Poles, Summarized by Species and Condition of Seasoning.

small pieces is erratic, as would be expected from the rather small number of tests averaged for each pole, it shows a tendency to fall with a fall in strength of the poles, indicating the influence of the quality of the clear wood on the strength of the poles.

The most important relation shown by the curves is that the ratios between pole and minor strengths are not the same for the different species, indicating that it is not safe to compare species for use as poles on the basis of the strength of their clear material. For example, western red cedar gave an average modulus of rupture for the small, clear beams of 9,305 pounds per square inch, and the lodgepole from Montana averaged

WESTERN RED CEDAR FROM IDAHO.

Top diameter.	Length.	Number of poles tested.	Average values of— Weight of poles.	Weight per cubic foot.	Moisture.	Rings per inch.	Sap.	Top load at failure.	Modulus of rupture.
Inches.	*Feet.*		*Pounds.*	*Pounds.*	*Per cent.*		*Per cent.*	*Pounds.*	*Lbs. per sq. in.*
6	25	3	205	22.0	9.4	13.7	38.0	1,853	6,221
7	25	4	244	23.0	9.2	23.0	27.6	1,948	5,712
8	25	3	282	22.9	10.2	18.3	26.3	2,667	5,290
6	30	4	283	22.4	13.6	20.1	28.1	1,590	5,126
7	30	4	344	26.1	10.0	23.3	24.5	2,434	5,549
8	30	3	382	23.4	9.1	23.4	21.4	2,740	5,308
7	35	3	477	22.1	8.1	19.3	40.8	2,000	5,080
8	35	3	471	19.4	10.4	18.5	28.7	2,125	4,391
9	35	3	522	21.5	10.2	22.6	24.9	2,992	4,755
WESTERN RED CEDAR FROM OREGON AND WASHINGTON.									
6	25	3	204	24.1	8.7	24.4	41.6	1,470	5,525
7	25	3	213	19.8	15.1	6.6	41.2	1,625	4,481
8	25	3	238	19.8	18.0	9.5	30.1	2,072	4,816
6	30	3	255	21.7	17.0	7.2	36.8	1,352	5,784
7	30	3	240	18.8	7.4	9.3	33.3	1,597	7,006
8	30	3	395	22.8	15.4	11.3	29.2	2,385	3,146
7	35	3	331	21.1	9.2	8.0	32.7	1,712	6,408
8	35	3	546	24.6	34.0	6.8	38.2	1,888	4,349
9	35	3	597	24.8	11.6	24.3	17.4	3,257	5,665
PORT ORFORD CEDAR.									
6	25	3	256	31.3	11.6	16.3	.....	2,027	7,616
7	25	3	315	24.8	10.7	25.6	.....	3,277	7,896
8	25	4	460	26.6	13.3	10.3	.....	3,740	6,058
6	30	3	375	24.3	8.6	15.3	.....	2,518	6,817
7	30	3	397	25.2	20.5	15.0	.....	2,790	7,332
8	30	3	441	24.0	9.6	14.7	.....	3,577	7,824
7	35	3	585	30.4	10.1	9.0	.....	3,123	6,851
8	35	3	591	28.1	9.7	21.0	.....	3,057	6,928

Table No. 5. Results of Pole Tests by Pacific Company.

12,775. While the strength of the clear material of the pine is thus 37 per cent. higher than that of the cedar, the average strength of the poles was a little less than 12 per cent. higher. The ratios of the average modulus of rupture of the poles to that of the clear material for two conditions of moisture is as follows:

Kind of poles.	As tested at 8 per cent.	As estimated[1] at 16 per cent.
Western red cedar	0.74	0.98
Lodgepole pine:		
Green cut	.60	.80
Fire killed	.60	.80
Englemann spruce, fire killed	.48	.65

[1]On the basis that an increase in moisture from 8 to 16 per cent. causes a 25 per cent. reduction in strength.

Conclusions.

The tests on poles and specimens cut from them show that:

1. Air-seasoned lodgepole pine poles cut from live timber in Montana were fully equal in strength to the cedar poles tested. In actual stress developed they were superior, but on account of the greater taper of the cedar poles advantage was lost in a comparison based on equal top diameters, the dimension usually specified.

2. Cedar poles were superior to the pine and spruce poles cut from a fire-killed area in Colorado in maximum load developed. The three shipments were, however, practically equal at the elastic limit. Where the native poles to be used in place of cedar without change of specifications, it would follow that the factor of safety would be reduced one-fifth for conditions at failure, but would remain the same for stresses at the elastic limit.

3. The fire-killed pine, after standing 10 years, did not show deterioration to any appreciable extent when compared to seasoned lodgepole pine cut from representative live trees in

Length of poles.	Top diameter.	Western red cedar from Idaho. Number of poles.	Western red cedar from Idaho. Average top breaking load.	Western red cedar from Oregon and Washington. Number of poles.	Western red cedar from Oregon and Washington. Average top breaking load.	Port Orford cedar. Number of poles.	Port Orford cedar. Average top breaking load.
	Inches.		*Pounds.*		*Pounds.*		*Pounds.*
25 and 30 feet	6	7	1,703	6	1,411	6	2,272
25, 30, and 35 feet	7	11	2,139	9	1,645	9	3,063
25, 30, and 35 feet	8	9	2,511	9	2,115	11	3,169
35 feet	9	3	2,992	3	3,257	.....	.....

Table No. 6. Relation of Top Diameters and Top Breaking Loads.

Wyoming and Colorado. The advantage in strength of the material from the lodgepole pine poles from Montana can be accounted for by the fact that it was above normal in weight—at least for lodgepole pine from the southern part of its range.

4. The ratio between the strength of the poles and the

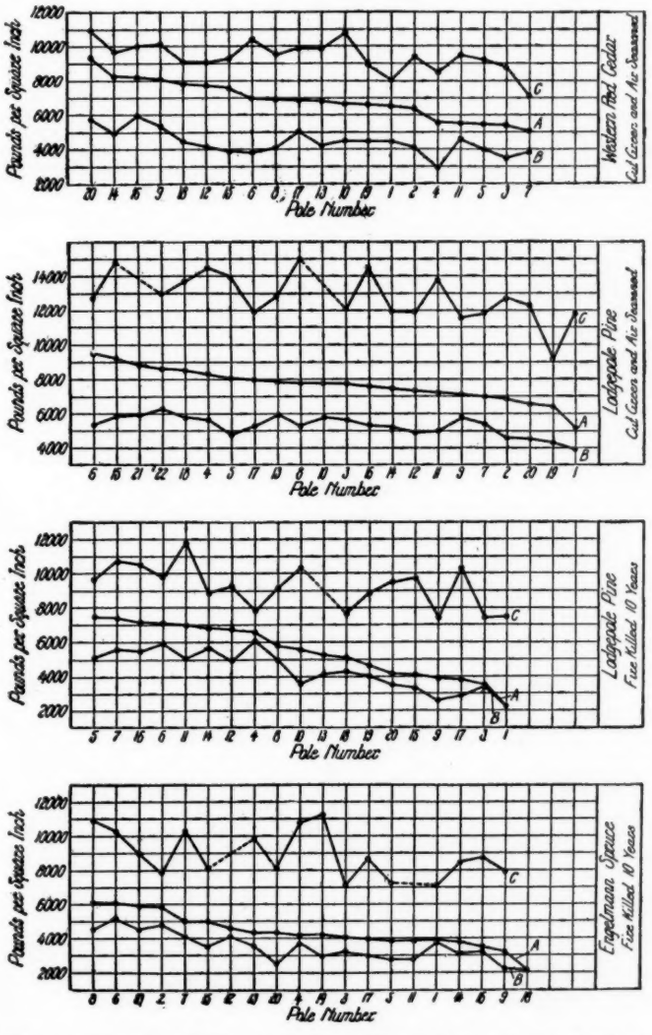


Fig. 8. Relation of Fiber Stress of Poles and Modulus of Rupture of Small Clear Beams Cut from them to Modulus of Rupture of Poles.

strength of the clear material cut from them is not constant for the different kinds of wood. This "efficiency" factor varied from 0.74 to 0.48 of the strength of the clear wood when the comparison is made as tested, and from 0.98 to 0.65 when compared on the basis of values estimated to represent the same

moisture condition in the small pieces as existed in the poles when tested. The values were highest for the cedar and lowest for the spruce, the pine representing an average for the three species.

The Pacific Telephone & Telegraph Co. made tests on 81 poles of western red cedar and Port Orford cedar at the pole yards of the Western Electric Co. near Richmond, Cal. These poles were 25 and 30 feet in length, with 6, 7, and 8-inch top diameters, and 35 feet in length, with 7, 8, and 9-inch tops.

The method employed in these tests makes it impossible to make any accurate comparisons of stress values with those obtained in the Forest Service tests. In the telephone company's tests stresses are figured for the point of failure, while the Forest Service tests are figured for the load point or ground line, theoretically the point of greatest stress.

In the telephone company's tests the poles were tested horizontally, with 6 feet of the butt end of the pole held firmly between four 12 by 12-inch posts set in the ground. The load was applied to the top of the pole, by means of a winch, at a rate of 1 foot per minute. A direct-reading dynamometer was placed in the line connecting the winch with the top of the pole. The top end of the pole was supported on a dolly with truck casters which traveled on a piece of sheet iron, thus eliminating friction. Readings of the movement of a nail driven into the top of the pole were taken for each 100 pounds increment of load.

The Pacific Telephone & Telegraph Co. has kindly permitted the use of its test data, and Table No. 5 is compiled from their report. Comparison of the equivalent top load in Table 2 with the top load for 7-inch by 25-foot poles in Table No. 5 shows a difference of only 5 per cent. while the calculated stresses are about 20 per cent greater for the Forest Service result. This difference, as already stated, is probably due to the different methods used, both for calculating the stress and for supporting the butt of the pole.

Reference to Table No. 5 shows that there is no consistent variation when poles of the same top diameter but of different lengths are compared. However, Table No. 6, compiled from Table No. 5, shows a very marked relation between top diameter and top breaking load in the three classes of poles tested by the Pacific Telephone & Telegraph Co.

Dividend Situation of Keystone Telephone Co.

Keystone Telephone Co. has declared the second regular semi-annual dividend of 3 per cent. on its preferred stock, and it is now believed, says the Wall Street Journal, that sometime within the current year the board may take steps towards beginning the payment of the accumulated dividends on the preferred stock.

The company has $1,936,850 preferred stock outstanding and there are accumulated and unpaid dividends on it amounting to about $31.50 a share or 63 per cent. of par. As there are 38,717 shares the accumulated dividends aggregate $1,219,585. While the company could have begun the payment of preferred dividends previous to last November when the first dividend was paid, it was the policy of the board not to begin the dividends until the accumulated surplus had exceeded $1,200,000 and the reserve and renewal fund $500,000. The accumulated surplus of the company is now in excess of $1,360,000.

For 1913 the company earned at the rate of 16.5 per cent. on its preferred stock and for the first three months of 1914, the surplus, applicable to dividends on the preferred, was $84,764, an increase of $8,690 over the surplus for the first quarter of 1913. The company for several years charged off $100,000 annually for depreciation but in 1913 it charged off, for this purpose, $108,038 and in 1912 $60,000. While the surplus for the first quarter of 1914 showed an increase of $8,690, net earnings increased $11,101 and gross earnings $13,281, over the three months ended March 31, 1913.

Cheer Up, Mr. Taxpayer!

A dispatch from St. Paul, Minn., states that the Wedge Telephone Co. has paid its gross earnings tax for 1913, together with a 10 per cent. penalty and one per cent. interest for two months, with a two-cent postage stamp.

The company operates a line at Thorhult, Minn., which was opened January 2, 1913. The expense of maintaining the system is the only charge made against subscribers and this amounted to 35 cents for that year. The money was spent for dry batteries.

The 35 cents, however, is considered taxable under the law and the tax at 3 per cent. was 1.05 cents.

From Factory and Salesroom

Conventions: Missouri, Kansas City, May 6, 7; Joint, Pennsylvania, Johnstown, Pa., May 7, 8; Tri-State, Jackson, Tenn., May 19, 20; Railway Telegraph Superintendents, New Orleans, May 19, 20, 21 and 22

Automatic Publication Completes First Year.

With the May issue of "Automatic Telephone," off the press this week, the publication issued monthly by Automatic Electric Co., of Chicago, completes its first volume.

In form and material this periodical has been, in many ways, unique, and has struck a new note in the telephone field. While frankly published in the interest of the telephone apparatus manufactured by the Automatic Electric Co., the articles appearing in it have been designed to interest telephone men in general, whether connected with automatic or manual plants. The range of subjects covered have been wide, and matters of importance not only to the operating department, but to directors and commercial men as well, have been treated.

Articles of a financial character, dealing with operating costs, security issues and the like, have appeared from time to time, while three series of articles have been specially notable. One of these, "The Fundamentals of the Automatic Telephone," by Arthur Bessey Smith, an Automatic Electric Co. engineer, has told in simple language and careful illustrations, of the electrical and mechanical details of this apparatus.

"Development Studies," written by Bernard C. Groh, the company's plant chief, has dealt with the economical and efficient layout of the cable plant and other kindred matters, in a way which should prove of interest and real value to men engaged in this work.

Roy Owens, superintendent of the operating department of Automatic Electric Co., is the author of a series, "Scientific Management of the Telephone Exchange." He has detailed many of the methods for the efficient conduct of the operating branch of this utility. While special stress has been laid upon the automatic apparatus in this connection, the articles have contained much that appeals to manual men, as well.

The form of the publication, that of a newspaper, is a novel one in this field, but has been consistently adhered to. The first page, with its array of "news" heads has been full of "stories," many of them of timely interest to the telephone world in general. While no attempt has been made to conduct a "funny column," the humor of the game has received

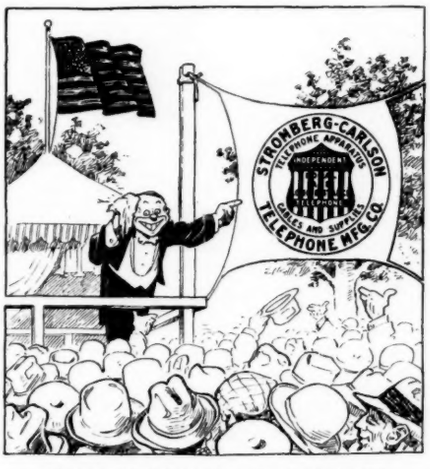
attention in many little anecdotes and stories tucked away in odd corners.

Typographically, the paper has been excellent, being printed in good, clear type on a high grade of paper.

The Automatic Electric Co. announces its intention of continuing the publication of "Automatic Telephone" during the coming year. The present form will be continued but certain new features are planned, which, the company hopes, will render the periodical even more interesting than before. The paper is distributed free to those interested in telephone matters and the company invites those who wish to receive it, to send in their names and addresses.

Phoney Bill's Here Again.

Phoney Bill, the versatile telephone artist on Stromberg-Carlson's May blotter, is again on the job addressing a crowd of rural subscribers on Memorial Day. Phoney Bill wears the same old-time expansive smile, as convincing as it is ingratiating, and he is advising all who are standing near that



Phoney Bill Preaches Independence.

Independent telephony is Independence. "That Emblem," says Phoney Bill, "means quality and independence."

These blotters bear, also, small size calendars of April and June, which are very convenient for the busy man's desk. They may be obtained by applying to the Stromberg-Carlson Telephone Mfg. Co., of Rochester, N. Y.

"Coffey System" Installations in Iowa.

The "Coffey System" is being installed for the Fort Dodge Telephone Co., of Fort Dodge, Iowa, this week and will be installed for a number of other Iowa companies immediately. J. W. Coffey, of the Coffey System & Audit Co., of Indianapolis, Ind., is now in Iowa in connection with this work.

The Smith-Chicago Mixer.

The Chicago Mixer, which was formerly sold by the Chicago Concrete Machinery Co., has been taken over entirely by the T. L. Smith Co., 3130 Hadley street, Milwaukee, Wis., and will now form a part of that company's regular line. The machine has been entirely redesigned and will be known as the Smith-Chicago mixer.

Career of A. V. Overshiner.

A. V. Overshiner, who recently became advertising manager of the Garford Mfg. Co., successor to the Dean Electric Co., of Elyria, Ohio, is well known in the telephone field. He began in the telephone business by operating a small telephone exchange in Indiana in 1893 or 1894. Mr. Overshiner's memory of these early days is that operating an Independent telephone exchange at that time was beset with difficulties that required constant manouvering to overcome. The equipment was crude and he was "kept on the jump" to keep his handful of subscribers in a rental paying humor.

In 1899 he went to Chicago and entered the employ of the Swedish-American Telephone Co., then a small concern occupying small quarters on the North Side. Those connected with the company, however, were ambitious and all worked hard, with the result that the business soon demanded larger quarters and the company accordingly moved to the downtown manufacturing district. Mr. Overshiner's duties were general. He spent considerable time on the road working up business and a little later on became sales manager. The business continued to grow and the force was correspondingly increased. Mr. Overshiner handled all sales correspondence and advertising. The company's product was confined to magneto equipment and it catered to the smaller towns and rural districts and a mail order business was developed. Mr. Overshiner continued in this work until 1912, when he became interested in a farm wagon manufacturing company and handled its sales on the mail order business.

Washington, Ind., to Have Automatic Exchange.

The Pike County Telephone Co., operating exchanges at Petersburgh, Winslow, Otwell and Monroe City, Ind., and a number of rural telephones and approximately 110 miles of long distance lines, has placed an order with Automatic Electric Co., of Chicago, for an initial installation of 800 lines of full automatic telephone equipment for the new exchange it is building at Washington, Ind. The company will install an all cable plant and the construction will be first class and complete in every respect, and it is planned to make this exchange one of the most modern in the country, embodying all the newest developments in telephone art and practice.

Paragraphs.

SPON & CHAMBERLAIN, 123-125 Liberty Street, New York, N. Y., has issued a catalogue containing a selected list of practical books of Electricity; Mechanics; Automobiles; Aeronautics; Woodworking; Gas, Oil and Steam Engines; and Useful Art Crafts, etc. A feature of this catalogue is a list of books on varied subjects at 25 cents each.

W. N. MATTHEWS & BROTHER, St. Louis, have issued a booklet entitled "Ask the Man that Uses Them," in which an opportunity is given to read a large number of letters from officials of telephone companies regarding the satisfactory service given by the Matthews boltless guy clamps, Matthews guy anchors and cable splicing joints.

THE NORTHWESTERN ELECTRIC CO.'s April issue of its house organ, "The Northwestern Buzzer," issued from the company's headquarters at 174-178 East Sixth street, St. Paul, is a "New Home Number" in honor of the company's occupancy of its new building. In the issue are published reproductions of some good photographs of the officers of the company a history of the company and its great growth, some exterior and interior views of the new building and various articles of interest.

AMERICAN ELECTRIC CO., Chicago, Ill., has issued an interesting leaflet entitled (in the language of the "Movies") "An Interesting Picture Story of Venture and Success. In Three Reels." This first reel of the "American Feature Series" describes and illustrates the company's "Samson" telephone No. 360. "American" apparatus, says the leaflet, is the result of the effort of P. C. Burns, president of the company "to furnish the best equipment with the fewest parts and least complication so as to give the longest life and best service. An experience in making over 6,000 switchboards, large and small, and several million telephones is boiled down in this equipment. The value is proven by their use today in thousands of exchanges."

Legal Cases and Decisions

By A. H. McMillan

Stock in Co-operative Line.

"Would like to have your opinion on the following:

"A is a stockholder in a co-operative farm line and leases his farm and telephone share to another. He then buys two shares which are held by B and C, who have left the line and offered their stock for sale. He now proposes to extend the line about six or seven miles across the state line into South Dakota, and members on the line object to same, as they claim that he has no right to take the line out of the neighborhood and that it would interfere with the service if any more mileage were added to the line.

"Our impression is that as he is already a member of the line, they cannot stop him from building the additional line. Could they stop him from taking the line across the state line? We give service to a business house at the rate of $1.50 per month, charging 10 cents per call to non-subscribers not connected with the firm, for calls on country lines. Subscriber claims $1.50 covers all calls from his telephone put through by his customers. Is he right?"

The question of whether the stockholder in the co-operative line can extend it into the next state against the objection of other members is one that could not be answered without a careful examination of the organization of the company, including its articles of incorporation or constitution and by-laws, if it has any. If such documents showed that it was not contemplated that the line would be extended beyond the immediate neighborhood and residences of the stockholders, we think it could not be done.

So far as his building the line across the state, the answer also depends upon his purpose in so doing. If it is to take on new members in the other state, he would not have a right to do so without the consent of the present members. Of course, membership in a co-operative farm line is personal, and the existing members do not have to accept into membership newcomers unless they wish.

The question of whether the rate of $1.50 per month covers all calls from his telephone made by his customers depends upon his contract, without seeing the terms of which we can not answer. Our impression is that contracts do not usually cover calls from other than the subscriber and his employees, in case of business telephones.

A Limit to Telephone Conversation.

"I would like very much to learn through TELEPHONY of any rulings or decisions handed down in courts as to whether a telephone company can reserve the right to terminate or disconnect parties after five minutes' duration, as we are experiencing a number of complaints about parties using the line as long as 30 minutes for one conversation. Our subscribers' contracts read that a local message is a personal communication, five minutes or less in duration. However, we are not governed by this contract in disconnecting parties while engaged in conversation until we can learn the ruling in this matter. While we do not intend to apply this form of procedure to anything but duplex, two-party lines, I shall appreciate any information you can give me."

We know of no rulings by the courts on the subject above mentioned, but we feel confident that your contract is legal and can be enforced, as a telephone company has a right to make whatever reasonable rules and regulations it deems wise for the conduct of its business.

Post Routes and Post Roads.

Under the statute of the United States (March 1, 1884, C. 9, 23 Stat.), providing that all public roads and highways, while kept up and maintained as such, are thereby declared to be post routes; "post routes" means the same as "post roads," as used in the revised statutes of the United States (Section 5263), authorizing telegraph companies to construct, maintain and operate lines of telegraph over and along any of the post roads of the United States, which have been or may hereafter be declared such by law. Under this latter section, it is held that a state or town within a state, cannot exclude a telegraph company, engaged in transmitting interstate, international and government messages, where the company has accepted the terms proposed by the national government, even though such company is organized under the laws of that state, since, because of its powers to regulate interstate and foreign commerce and the operation of the national postal service, the legislation of Congress, so far as it has gone, is supreme.

The authority thus conferred by the laws of the United States is held to be merely permissive and gives no right to use the soil, even of post roads, as against private owners, or as against the state or municipality, where it owns the land, nor is any right of eminent domain included, and the company may be required to make reasonable compensation to the municipality entitled thereto for the occupation of its post roads.

This decision was made in a suit for injunction brought by the New England Telephone & Telegraph Co. of Massachusetts against the town of Essex. The defendant town was under a temporary injunction since September 5, 1905, which it never moved to dissolve. The telephone company had been located in the town, and desiring to make repairs to its line, applied to the selectmen of the town for a relocation. It was stated in the application that the new poles were to occupy practically the same positions as the old ones and that any changes were to be made under the direction of the selectmen.

The selectmen refused to grant a relocation, desiring to raise the question of the company's rights in the town. The selectmen threatened to prevent the work by force if necessary.

It appeared that the telephone company had constructed its line, in the first place, without permission, but the court held its continued occupation of the town after the refusal of the selectmen to grant the new location was not unlawful since the laws of the state nowhere made illegal the construction of a telegraph line without a permit or specification. A permanent injunction to restrain interference on the part of the town was granted. New England Telephone & Telegraph Co. vs. Town of Essex, 206 Federal, 926.

Defective Equipment.

A plaintiff's minor son came in contact witth a broken electric light wire belonging to the village, but which it was claimed was burned in two by contact with an overhanging wire of a telephone company. It appeared that the telephone wires were permitted to sag in dangerous proximity to the electric light wires, while the latter were not properly insulated, and no precautions were taken to prevent contact. The accident, it was claimed, was the result of concurring causes, the removal of any of which would have prevented it, and hence the question of proximate cause was for the jury.

It was held to be the duty of the village officers in charge of the village electric light plant to remove the danger if possible, or cause the same to be removed by the telephone company, without reference to the fact that the village was first on the ground and its poles and wires were in position under legal authority when the franchise for the construction of the telephone system was granted. Sykes vs. Village of Portland, Mich., 143 Northwestern, 326.

Tax on Gross Earnings.

An amendment to the constitution of California provided that the taxes therein levied on gross earnings should be computed on the 31st day of December of each year; become a lien on the first Monday in March; be payable the first Monday in July; and that such tax should be in lieu of all other taxes. When this amendment went into effect, there was in force an ordinance, adopted by the board of supervisors of the city and county of San Francisco, levying a license upon everybody engaged in the supplying of telephone service to the inhabitants of the city and county.

This license amounted to $251 per quarter upon those whose gross receipts amounted to $500,000 or more per quarter. Under this ordinance, the city and county of San Francisco sued the Pacific Telephone & Telegraph Co. The company defended and the supreme court of the state held that the telephone company was not liable, because the amendment to the constitution relieved the company from liability for the other tax. City and county of San Francisco vs. Pacific Telephone & Telegraph Co., 135 Pacific, 971.

Condensed News Reports

Officers of Companies are Earnestly Requested to Forward Us Promptly All Financial and Other Statements as Soon as Issued and Any Items of Interest as to Their Plants and Systems

Personal.

FREDERICK B. MACKINNON, secretary-treasurer of the National Independent Telephone Association, with headquarters in Washington, D. C., was married on Saturday, April 18, to Miss Cecil P. Leland, of Eldorado, Kans.

For 11 years Mr. MacKinnon was active in Kansas Independent telephone affairs, before assuming his present position with the National Independent Telephone Association. He was manager of the Lawrence Home Telephone Co., of Lawrence, Kans., for two years and then became president and general manager of the Suburban Telephone Co., which has its headquarters at Tonganoxie, Kans. Mr. MacKinnon retained his residence in Lawrence and for seven years directed the affairs of the Suburban company. With the enactment of the Kansas public utility law, the Independent telephone companies felt the need of a representative in Topeka to appear before the Kansas Public Utilities Commission in their behalf. Mr. MacKinnon was accordingly selected as secretary of the Kansas Independent Telephone Association and for two years devoted his entire time to the interests of the Kansas Independent companies. During his encumbency as secretary, the system of accounting for telephone companies, now being enforced by the Kansas commission, was developed with his aid.

Frederick B. MacKinnon.

In 1913 Mr. Kinnon was elected a director of the National Independent Telephone Association and was re-elected at the January convention this year. With the opening of the Washington office of the association, the directors made Mr. MacKinnon secretary-treasurer, as it was felt that his experience, both in operating and with commission requirements, would be especially valuable in representing the cases of Independent companies before the Interstate Commerce Commission and the Department of Justice.

TELEPHONY joins with Mr. MacKinnon's many friends in the telephone field, in extending congratulations.

O. N. BURGESS, of Iowa, has been appointed telephone expert for the State Public Utilities Commission of Illinois.

R. Y. SPAULDING, of Louisville, Ky., has been appointed manager of the Bowling Green, Ky., exchange of the Cumberland Telephone & Telegraph Co., to succeed J. M. Bratcher, resigned.

J. E. HEATON, of Denver, Col., has been appointed local manager for the Mountain States Telephone & Telegraph Co. at Sheridan, Wyo., to succeed R. A. Fenton, who has been promoted to a more responsible position with the Eastern division.

E. J. HIGGINS, chief clerk of the New Jersey division of the New York Telephone Co., has been made district manager with headquarters at Paterson, N. J., to succeed M. J. Maloney, who has been assigned to special duties with temporary headquarters in New York.

Obituary.

EDWARD W. WOELK, who is said to have erected one of the first telephone exchanges in the world, passed away recently at his home in Belleville, Ill., at the age of 68. Mr. Woelk is a native of Germany and came to this country alone, when 15 years old. In 1878 he became interested in the telephone and erected, at Springfield, Mo., what is said to be one of the oldest telephone exchanges in the country. He sold his interests there in 1882 and became connected with the Bell company. He later became associated with the Rural Telephone Co., of Belleville, Ill., as special agent. Mr. Woelk was a member of the Telephone Pioneers of America.

WM. T. WESTBROOK, one of the early telephone pioneers, died recently in Philadelphia, at the age of 76. Mr. Westbrook entered the telegraph service at the age of 12 as a messenger boy, in Wilmington, Del., and later became an operator. He was soon transferred to the New York office, and, at the outbreak of the Civil War, joined the signal corps, handling private messages. In 1887 he opened up a telephone exchange at Wilmington, which he operated until 1882, when he sold his interests to the Delaware & Atlantic Telegraph Co., becoming its manager in that city. About eight years later he was transferred to Philadelphia as superintendent of the Philadelphia telephone branches. From this position he was promoted to manager, and in 1900 to general manager. He was subsequently elected vice-president of the Delaware & Atlantic Telephone & Telegraph Co., from which office he resigned in 1903 to become special agent. Mr. Westbrook was a member of the Telephone Pioneers of America.

New Companies and Incorporations.

MURPHYSBORO, ILL.—The Perry County Telephone Co. has filed articles of incorporation with $15,000 capital stock. The incorporators are: A. B. Minton, W. C. Alexander and John G. Hardy.

PALESTINE, ILL.—The La Motte Co-operative Telephone Co. has been incorporated with $250,000 capital stock by G. L. Weener, M. Fife and E. S. Dry (Not a new company).

BOSWELL, IND.—The Farmers & Merchants Telephone Co. has been incorporated with $12,000 capital stock. The directors are: William J. Lawson, Levi Orr, Carl Lamb, Jerry Heinrich, David Smith, John Bennett, Charles Johnson, William Beazell, Mont Padgett, Harvey Smith and Kin Demmick.

MOONEY, IND.—Articles of incorporation have been filed by the Jackson County Mutual Telephone Co. with $3,000 capital stock. The incorporators are: J. E. Tanner, Harry Dodds, L. W. Lockman and F. Louden.

PFEIFER, KANS.—Articles of incorporation have been filed by the Farmers Telephone Co. with $5,000 capital stock. The incorporators are: R. C. Burnham, Albert Jacobs, John Mader, Jacob Burgordt and George Dome, all of Pfeifer.

ALVATON, KY.—The Alvaton Home Telephone Co. has been incorporated with $400 capital stock. The incorporators are: J. E. Poe, E. M. Jenkins, M. Isabell, E. C. Satterfield, J. C. Myers, J. S. Kirby, Mrs. C. A. Bates, F. B. Isabell, J. H. Larmon, Claude Bates, J. H. Kingston, Paul Poe, L. M. Larmon, W. R. Francis and Nannie Sherry.

CONCORD, KY.—The Concord Telephone Co. has filed articles of incorporation with $2,000 capital stock. The incorporators are: A. Ashenhurst, Julius Ashenhurst, W. O. Call and Floyd Call.

PERRY, ME.—The Perry Telephone Co. has been incorporated with $3,000 capital stock. The officers are: W. J. Johnson, president, and Ellis E. Boyden, treasurer, both of Perry.

MORRICE, MICH.—The West Antrim Telephone Co. has been incorporated with $1,005 capital stock, by Edward Dippy, James Cunningham and Edwin Hankinson, all of Morrice.

PARKER'S PRAIRIE, MINN.—Articles of incorporation have been filed by the Effington Mutual Telephone Co. with $1,000 capital stock. The officers of the company are as follows: President, Richard Waugesin; vice-president, Albert Thun; secretary, Albert Hollatz; treasurer, Wm. Kolbeamick.

CARTER, MONT.—The Teton Branch Telephone Co. has been incorporated with $4,000 capital stock. The incorporators are: Fern Graham, G. S. Fayler and J. P. Carter, all of Carter.

HIGHWOOD, MONT.—The Nine Mile Highwood Telephone Co. has filed articles of incorporation with $1,000 capital stock. The incorporators are: J. L. Goodhee, John Jacoby, W. L. Jones and C. W. Vaughn, all of Ft. Benton, Mont.

FORT BENTON, MONT.—The Pleasant Valley Farmers Telephone Co. has been incorporated with $2,000 capital stock, by R. D. Moede, W. O. Simmons and James W. Hughes, all of Fort Benton.

CARMEN, OKLA.—Articles of incorporation have been filed by the Bethel Telephone Co. with $1,000 capital stock. The incorporators are: A. H. Bullis, J. Q. Jamison and H. A. Livick.

CEMENT, OKLA.—The High View Telephone Co. has been incorporated with $250 capital stock by L. E. Burr, of Anadarko, C. H. Mabry and E. E. Swinney, of Cement, and C. Haumark, of Anadarko.

GLENPOOL, OKLA.—The Glenpool Mutual Telephone Co. has been incorporated with $3,000 capital stock, by Fred Markle, John Shoffer, C. E. Lytson, and Chas. Graham, all of Glenpool.

MEHAN, OKLA.—The Stillwater Valley Telephone Co. has filed articles of incorporation with $2,000 capital stock. The incorporators are: C. A. McKinzie and Wm. Varley, of Mehan, and V. Comfry, of Ripley.

ALSEA, ORE.—The Alsea Telephone Co. has been incorporated with $1,000 capital stock by M. Hayden, L. G. Headrick and C. J. Sanford, all of Alsea.

BELLEVILLE, PA.—The Farmers Telephone Co. has been incorporated with $5,000 capital stock. The incorporators are: B. H. Smucker, W. K. McClenahen and F. W. Warner, all of Belleville. (Not a new company.)

LETCHER, S. D.—The Butler Township Telephone Co. has filed articles of incorporation with $25,000 capital stock. The incorporators are: N. M. Steinfeld, Geo. I. Green and Homer Larimer, all of Letcher.

JAMESTOWN, TENN.—The Home Telephone Co. of Fentress County has been incorporated with a capital stock of $1,000. The incorporators are: D. A. Todd, J. F. Cross, W. K. Todd and C. C. Shoate.

LAFOLLETTE, TENN.—The Powell Valley Telephone Co. has been incorporated with $1,000 capital stock, by Boyd Miller, W. R. Lewis, L. C. Mullens, R. R. Miller and W. E. Kincaid.

FLOYD, VA.—The Citizens Mutual Telephone Co. has been incorporated with a maximum capital stock of $10,000. J. P. Williams is president, and L. C. Hylton, secretary, both of Floyd.

NORWOOD, VA.—The Nelson County Telephone Co. has been incorporated with $4,000 capital stock. The incorporators are as follows: S. M. Golladay, president, and C. D. Mundy, Buffalo Sta., Va., J. L. Gray, vice-president, D. E. Nelson, secretary and treasurer, and W. R. Putney, Norwood, Va.

CENTRALIA, WASH.—The Lincoln Creek Telephone Co. has filed articles of incorporation with $1,000 capital stock. The incorporators are: Eustace Childers, John T. Sinclair, F. B. Fogelsong, E. Conley and Carl F. Huber, all of Centralia.

SIREN, WIS.—The Siren Independent Telephone Co. has been incorporated with $2,500 capital stock by Charles Hjort, John R. Tjader, Fred Johnson, John A. Anderson, and Emil Johnson, all of Siren.

Construction.

LOS GATOS, CAL.—The Los Gatos Telephone Co. is enlarging and greatly improving its system. The demand for telephone service has expanded so rapidly during the past six months that extensions have become imperative. The cost of the improvements and extensions will be over $8,000.

SANTA BARBARA, CAL.—The Pacific Telephone & Telegraph Co. will make extensions and improvements to its system in this city, at a cost of $2,000.

SAVANNAH, GA.—The Southern Bell Telephone & Telegraph Co. is planning to erect a new three-story exchange building in this city, at a cost of $40,000.

POCATELLO, IDAHO.—The Mountain States Telephone & Telegraph Co. has purchased a site and will erect a new $85,000 exchange building in this city.

GENEVA, ILL.—The Inter-State Independent Telephone & Telegraph Co., with headquarters at Aurora, Ill., has completed plans for the rehabilitation of its exchange in this town.

ROCHESTER, N. Y.—The Rochester Telephone Co. is planning to double the present capacity of its Stone street exchange. The new switchboard, when completed, will have five sections with a capacity of 3,000 lines each, or 15,000 lines.

RED CLOUD, NEB.—The Farmers Independent Telephone Co. has announced that work will begin within 30 days on the construction of its new exchange building.

CHEYENNE, OKLA.—The Roger Mills Telephone Co. is rebuilding its entire system, making all its lines full copper metallic.

ALLENTOWN, PA.—The Consolidated Telephone Co., with headquarters at Hazelton, Pa., is planning to make extensive improvements to its local plant. A new long distance board will be placed in the exchange, doubling the present capacity, and practically all of the lines in the city will be placed either underground or in aerial cable.

BLAIN, PA.—The Perry County Telephone & Telegraph Co., with headquarters at Landisburg, Pa., is making a number of extensions and improvements to its lines in this vicinity.

WINNIPEG, MAN.—Plans are being completed by the Manitoba Government Telephone System for the erection of a new exchange in this city, to be known as the "West" exchange.

Underground.

CEDAR RAPIDS, IOWA.—The Cedar Rapids & Marion Telephone Co. will improve its entire system at a cost of $85,000. One of the chief contemplated improvements is the placement of its wires in this city in underground conduit.

Financial.

BELMONT, WIS.—The Belmont & Pleasant View Telephone Co. has been authorized by the Wisconsin Railroad Commission to issue $400 worth of stock for the purpose of making additions and improvements.

CHILI, WIS.—The Lynn Telephone Co. has filed an amendment to its articles of incorporation in the office of the secretary of state, increasing its capital stock from $2,080 to $52,000. William Kurth is president, and W. R. Happe secretary of the company.

JANESVILLE, WIS.—The Rock County Telephone Co. has been authorized by the state railroad commission to issue $25,000 in bonds for the purpose of securing new equipment.

LUXEMBOURG, WIS.—The Pilsen Telephone Co. has been authorized to issue $175 worth of stock for extension of its rural lines in this vicinity.

WILD ROSE, WIS.—The Wild Rose Telephone Co. has been authorized by the Wisconsin Railroad Commission to issue $4,000 worth of stock for the purpose of making extensions and improvements to its system.

Elections.

BLOOMINGTON, ILL.—At a meeting of the stockholders of the Kinlock-Bloomington Telephone Co. directors for the coming year were elected as follows: John T. Lillard, B. F. Harber, H. F. Farwell, R. E. Williams, Breckenridge Jones, Jr., N. T. Nolker and Henry Nicolous. A delay of one year in the erection of the new exchange building in this city was also decided.

HEMINGFORD, NEB.—At the annual meeting of the Lawn Telephone Co. C. Klemke was elected president and Norbet Frohnakel, secretary. The company is planning to make a considerable number of improvements to its system.

MINDEN, NEB.—The Minden & Lowell Telephone Co. held its annual meeting recently and elected the following officers for this year: President, Wm. Shearer; secretary, Adrien Wells; treasurer, John Buchanan.

NEW BEDFORD, MASS.—At the annual meeting of the Automatic Telephone Co. the following directors were re-elected for the ensuing year: Frederic Taber, Lot B. Bates, Francis T. Akin, Edward D. Sherman, Thomas Hersom, William C. Hawes, Frederic H. Taber, Frederick W. Besse, William R. Hinkley and Timothy J. Moriarty.

DUNDEE, N. Y.—The annual meeting of the stockholders of the Crystal Springs & Dundee Telephone Co. was held recently, the following officers being elected for the coming year: President, Alonzo Eaton; vice-president, John Hallock; secretary, Marvin J. Price; treasurer, Simpson F. Lamphear; manager, John Faucett. Fred Sebring was elected a director together with all of the above officers.

RHINELANDER, WIS.—The Oneida Farmers Telephone Co., which was recently incorporated, has elected officers for the ensuing year as follows: C. P. Crosby, president; S. B. Gary, vice-president; and S. Sutliff, secretary and treasurer.

Franchise.

NEWPORT BEACH, CAL.—The board of trustees will receive bids up to May 4 for a certain franchise granting the right to construct and maintain a telephone and telegraph system here.

Miscellaneous.

AVILLA, IND.—Compromise of the controversy between the Bell company and the Avilla Mutual Telephone Co. over who owns the franchise, will result from the sale of the Bell interests to the Mutual company. The Bell company's offer to sell out for $3,100 was accepted, and it only remains now for the public utilities commission to approve. The commission at present has the franchise matter under advisement.

CADOTT, WIS.—In a recent fire, which wiped out a score of business buildings, with a total loss of $75,000, the Cadott Telephone Co. suffered a loss of $500 and the Wisconsin Telephone Co.'s exchange an equal amount.